



creative computing

GUIDE TO THE VIDEO ARCADE GAMES

DAVID LUBAR
OWEN LINZMAYER



TIPS FOR BEGINNERS AND PROS

- BATTLEZONE ■ BERZERK ■ CENTIPEDE
- DONKEY KONG ■ ELIMINATOR
- FROGGER ■ GORF ■ KICKMAN
- LADY BUG ■ ASTEROIDS DELUXE
- MISSILE COMMAND ■ MOUSETRAP
- PAC-MAN ■ PHOENIX
- QIX ■ SNAP JACK ■ STAR CASTLE
- STARGATE ■ TEMPEST ■ VENTURE



creative computing
GUIDE TO THE

Video
Arcade
Games

TIPS FOR
BEGINNERS AND PROS

by
David Lubar
&
Owen Linzmayer

Published by Creative Computing Press

Copyright © 1982 by Creative Computing

All rights reserved. No portion of this book may be reproduced—mechanically, electronically or by any other means, including photocopying—without written permission of the publisher.

Authors: David Lubar and Owen Linzmayer

Editor: Elizabeth B. Staples

Illustrations: Owen W. Linzmayer

Layout: David H. Ahl

ISBN 0-916688-35-6

Manufactured in the United States of America

First printing: June 1982

About Creative Computing

Creative Computing publishes magazines, books and software for people interested in small computers. The main publication is *Creative Computing* magazine which focuses on recreational, educational and personal computer applications.

Nearly one-third of the content of *Creative Computing* is in-depth reviews and evaluations of computers, peripherals, software, books, video and electronic games, and other consumer electronics products. As a result of performing thousands of in-depth evaluations, the editors have developed a unique expertise for putting together this book.

If you want to keep current on new small computers, electronic games, and video games (both home and arcade versions) *Creative Computing*, published monthly, is must reading. Copies are available at newsstands, computer stores, or more conveniently, by mail. For subscription information write to:

Creative Computing Press
39 East Hanover Avenue
Morris Plains, New Jersey 07950
(201) 540-0445

About the Authors

David Lubar is a writer and computer programmer specializing in game and graphics software for microcomputers. A native of New Jersey, he is happily married, fond of his cat and reluctantly confesses to being a mediocre bluegrass guitarist. Among his other hobbies are sleeping late, feeding quarters to arcade games, and collecting thoughts.

Owen Linzmayer, temporarily doing time as a high school student, is the TRS-80 Software Development Coordinator for Creative Computing Software and has reviewed computer games for several magazines. Also from New Jersey (and fond of his cat), he collects beer cans and hopes to retire rich before he is old enough to drink.

Acknowledgements

This book is the product of many hours work on the part of many people. Contributions were in various areas, ranging from game tips to editorial help, but each person listed below has made a valuable contribution. Special thanks to our arcade experts. Eric Wolcott, Neil Radick, and Paul Beckmann from Creative Computing Software spent many hours and quarters gathering information on many of the newer games. Special thanks go to David and Sandy Small, both for doing one of the first articles ever published on the topic, and especially for providing a devastating technique for Battlezone.

In the editorial area, Peter Fee and Andrew Brill devoted a great deal of time to the book. Without them, it wouldn't exist. Thanks also to Betsy Staples for editing the manuscript.

David Ahl coordinated the entire project and provided the information for Lady Bug and Snap Jack (a "chore" that entailed a trip all the way to England).

Finally, thanks to Elizabeth Magin, Diane Feller, and Mary McNeice for superb secretarial assistance.

Manufacturers

The names of the video arcade games are all registered trademarks of the companies listed below. We would like to thank these manufacturers for their cooperation in putting together this book.

Atari Incorporated
1265 Borregas Ave.
Sunnyvale, CA 94086

Asteroids Deluxe
Battlezone
Centipede
Missile Command
Tempest

Centuri, Inc.
245 West 74th Place
Hialeah, FL 33014

Phoenix

Cinematronics, Inc.
1841 Friendship Drive
El Cajon, CA 92020

Star Castle

Exidy, Inc.
390 Java Drive
Sunnyvale, CA 94086

Mousetrap
Venture

Midway Manufacturing Co.
10601 West Belmont
Franklin Park, IL 60131

Gorf
Kickman
Pac-Man

Nintendo of America, Inc.
18340 South Center Pkwy.
Seattle, WA 98188

Donkey Kong

Sega Enterprises, Inc.
2029 Century Park East, Suite 2920
Los Angeles, CA 90067

Eliminator
Frogger

Stern Electronics, Inc.
1725 Diversey Pkwy.
Chicago, IL 60614

Berzerk

Taito America Corp.
1256 Estes Ave.
Elk Grove Village, IL 60007

Qix

Universal U.S.A., Inc.
3250 Victor St.
Santa Clara, CA 95050

Lady Bug
Snap Jack

Williams Electronics, Inc.
3401 N. California Ave.
Chicago, IL 60618

Star Gate

Contents

Introduction	13
General Hints	15
Asteroids Deluxe	21
Battlezone	26
Berzerk	33
Centipede	38
Donkey Kong	44
Eliminator	49
Frogger	53
Gorf	56
Kickman	60
Lady Bug	63
Missile Command	68
Mousetrap	73
Pac-Man	75
Phoenix	80
Qix	83
Snap Jack	89
Star Castle	93
Star Gate	97
Tempest	101
Venture	106
Glossary	110

Introduction

To people who don't walk around with a pocket filled with ready quarters, the lure of arcade games is a mystery. They don't understand the thrill of clearing a wave of attackers, or the triumph of blowing away the high score. They don't know how it feels to beat the game. But you and I know, and that's what this book is all about.

Every time you drop a quarter, you are renting time on the machine. Whether that time turns out to be seconds or minutes is up to you; it's just you against the game. With practice, you can master any game. But those practice sessions are expensive. With the right tips, you can get ahead of the game. This book contains techniques and tips gathered from people who have invested many quarters. It covers the most popular games, spanning the range from classics like Asteroids Deluxe to newcomers such as Tempest and Snap Jack. If you are a first time player, there are hints to get you started. If you are already good, you will find ways to get even better. (Before you begin reading, you may find it helpful to read the glossary to become familiar with the terms used in this book.)

Beating the Programmer

Though an arcade game is actually a form of computer, the game program is written by a human, and this is the weak link in the chain. The people who write games try to anticipate all the possible situations that might occur, but nobody is perfect. Sometimes, a game player can beat the programmer by creating a situation that the programmer didn't anticipate, or by taking advantage of certain predetermined actions within the program. One good example can be found in Battlezone. Here, the program requires the buzzbombs to hop over obstacles as they make their way to the tank. But the program also seems to treat the tank as if it had no depth. So when the player gets right in front of or behind an obstacle, the bomb hops both the obstacle and the tank. While this might not be the best strategy for Battlezone, it illustrates the idea of exploiting a feature of the program.

A classic example of a situation the programmer didn't anticipate can be found in the original version of Asteroids. The game designers who tested the program rarely scored higher than 88,000 points. They were playing in the manner they believed everyone would: they tried to shoot as many asteroids as possible. Soon after the game came out, people realized that they could leave just one fragment on the screen, thus limiting the possibility of a collision, and devote their effort to shooting the saucer. With 1000 points for each hit, and a new ship awarded every 10,000 points, players were able to reach incredible scores using this technique.

Another example of beating the programmer can be found in Pac-Man. Since the ghosts chase the player, the programmer had to devise routines that controlled the ghosts based on the actions of the player. Normally, the player would be expected to run from the ghosts, so the program should have no problems. But players have learned that it is possible to confuse the ghosts with rapid changes in direction. By making rapid changes, including moves toward a ghost, you are beating the programmer, though such victories can be short lived if you pause to enjoy them.

Most programs allow possibilities that were never anticipated by the programmer. In some versions of Donkey Kong, you can avoid barrels by holding on to a ledge with one hand while standing on a ladder. In Eliminator you can sometimes get part of your ship past the border of the screen. Keep an eye out for things that no one in his right mind would try to do. You just may become the next arcade legend.

General Hints

While games vary immensely on the surface, they share many common attributes, awareness of which can aid your play. Let's take a look at some of these areas.

Rate of fire. Some games, such as Space Invaders or Battlezone, allow only one shot on the screen at a time. Other games have clusters of fire, as can be found in Asteroids Deluxe and Tempest. In some, you can shoot rapidly with one press of a button, in others, you must press once for each shot. When only one shot is allowed on the screen at any time, the key is to aim for the closest target whenever possible. This effectively increases your rate of fire. In games which allow more than one shot on the screen, there is usually a trade off. In Missile Command, for example, you can run out of missiles. In Berzerk, you can't move while you have an active shot. The basic rule here is to use the continuous capability when it creates an advantage, but beware of any disadvantages it entails. Specific examples will be covered under each game.

Collisions. Some games are more lenient than others. Asteroids Deluxe allows you to blow away an asteroid that is right on the nose of the ship. On the other hand, Frogger seems to judge some near misses as collisions. By watching others, and by playing, you can learn how close you can cut it and still survive. Since almost all games involve collisions, this is an important area to understand. Depending on the type of programming used, a collision may be based on actual contact with the player, or it may be based on a rectangular area that contains the player but also includes some empty space within the perimeter of the rectangle. Also, the sequence the program uses can be either an advantage or a disadvantage to the player. If a collision is checked for before the program checks to see if the player is shooting, he is at a slight disadvantage. If the program launches a shot before checking for collisions, the player has a slight edge.

Controller Reactions. Some controls are more sensitive than others. In *Donkey Kong*, you must be at the very top of the ladder before you can move left or right. In *Pac-Man*, you can register a turn before getting to a corner. Learn how quickly machines respond to your controls, and be careful when playing those that are fussy.

Changeable Parameters. The insides of most arcade machines contain switches which can be set to change parameters. The speed of objects, the score required for a bonus, the rate at which screens change, and many other variables can be adjusted by the arcade manager. As a result of this, you won't find much pattern-based information in this book. While techniques for devising patterns, and for surviving while discovering patterns, are useful, specific patterns have an annoying habit of becoming obsolete. Also, since much of good play is tied in with timing, don't be surprised if a game you have conquered on one machine seems more difficult in another arcade, or even on the same machine. The owner may have decided to make some changes. Once you have gotten to know a game, you will be able to adapt quickly to these changes. Remember, the owners want your game to be brief. When people start doing well, be prepared for changes.

Bonuses and Special Features. Most games offer bonuses in the form of points or extra men or both. Some of these features are worth going for; others are there mainly to help shorten the player's game. For example, the first hammer available in *Donkey Kong* allows the player to accumulate quite a few points at the start, but the time spent using the hammer makes it harder to get to the top since there are more barrels to deal with by the time he gets there. The time spent with the hammer also reduces the bonus value for that board. In *Centipede*, the player can control whether or not fleas drop. Fleas provide a scoring opportunity, but they also add mushrooms to the screen and distract the player from other dangers. Every special feature has advantages and disadvantages. Some are mere decoys, offering temporary boosts in score while hurting the player in the long run.

Others provide true benefits, but entail risks. Learn to judge the good and bad aspects of these features. Watch out for anything that seems to offer easy points, but take advantage of any bonus that can be gained without too much risk.

Goals. It is up to the player to decide whether he wants high scores or long play. While these two things are not always mutually exclusive, they often require different strategies. For instance, you can amass lots of points by starting *Tempest* at an advanced level. But a beginner who does this will probably have a very short game. In *Pac-Man*, you can go for score by taking every fruit that appears, or just see how many levels you can get through. A person playing for score might actually acquire more points in two or three levels than another person could by rushing through ten screens. In *Centipede* and *Asteroids Deluxe*, you extend play by getting bonus ships through score. But even here, there are choices to be made. In *Centipede*, you can wait for the spider to get quite low before shooting him, but the gain of points must be balanced against the possible loss of a ship.

Distractions. The best players are those who can concentrate on what they are doing without becoming absorbed in one small area of the screen. Games contain various types of distractions that are designed to hinder the player. While sound effects add spice to a game and can sometimes give the player information about what is going on, they can also take his mind from his play. The explosion of the player's ship in *Star Castle* is rather loud. This can have the effect of making the player more cautious, perhaps hurting his overall play. Be aware of the psychological use of sound. Fast motion and color can also be distracting. The flea dropping near the side of the screen in *Centipede* often sets the player up for a pouncing spider. As the flea drops, the player gets under him and starts to fire. He watches the flea to see if the shot hits, and before he knows it, a spider has bounced on him and he has lost a ship. Peripheral vision is a key to good play in most games.

While much of the fun in games comes from getting

involved—in actually becoming part of the action—the good player will always be aware of the whole screen. He isn't lured into dangerous positions and isn't distracted by motion and sound.

Wraparound. In some games, objects can leave the screen and reappear on the other side. This is called "wraparound." When an object is moving straight to the edge, the wraparound is easy to determine. The object just reappears in line with the point at which it left. Objects moving at an angle, such as the rocks in *Asteroids Deluxe*, seem to wrap around in strange ways, but the actual pattern is predetermined. If an object reaches any point on the edge, it will still reappear at the equivalent point on the other side and will maintain the same angle it had when it left the screen. For instance, an asteroid hitting the middle of the left edge of the screen will reappear at the middle of the right edge. The thing that makes this look deceptive is the angle of travel. If the object was heading downward at 40 degrees when it left the screen, it will still be traveling at 40 degrees when it reappears (See the section on *Asteroids Deluxe* for a diagram of this). In some games, the entire object is off the screen for an instant. If it is traveling at an angle, it will have moved slightly from its exit point, and will reappear at a spot not quite in line with where it left. Once you understand wraparound, you won't be taken by surprise, and will have a good chance of anticipating where targets will appear.

Horizontal and vertical motion. In most games, you can move more quickly diagonally. The best way to see this is to imagine the player traveling on a square. If he walks up or left, he moves one unit of distance. If he travels along the diagonal, he has actually moved a greater distance. Not only is the diagonal longer, but the only other way to get there would require two moves. So a diagonal change both covers more distance in one move and allows the player to reach a spot he couldn't otherwise reach with one move. In any game that allows diagonal motion, be aware of the advantage it offers. An obvious example would be *Berzerk*, where the

player can move much more quickly on the diagonal. A subtler example would be Missile Command; you can get the cross hair to the desired spot a bit more quickly with diagonal moves.

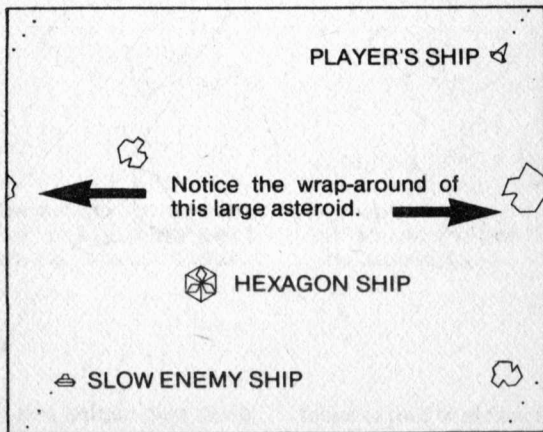
The above also applies to the path of your missiles in most games, as well as the path of all enemy items. Bullets cover more distance in less time when traveling diagonally. In general, it is a good idea to keep diagonal motion in mind and to learn the angles for any machine you play.

Asteroids Deluxe

Spawned by the popular Asteroids, the deluxe version adds new complexity. Like its predecessor, it allows certain strategies which result in both high scores and extended play. The game places the player in a field of moving asteroids. He has a ship that can thrust, fire, rotate, and use expendable shields. When an asteroid is hit, it breaks into smaller pieces, each of which also fragments when hit. The smallest fragments disappear when shot. Shields repel anything, but weaken with use. Adding to the player's problems are ships of various flavors which attack him during the game. There are saucers that shoot and ramships that try to smash into the player's ship. Here are a few basic concepts that will help the beginner.

Getting Started

Many beginners stay in the center, just rotating and shooting. This is a mistake. Not only does it keep them from learning to control the ship, it also limits the area they can cover since

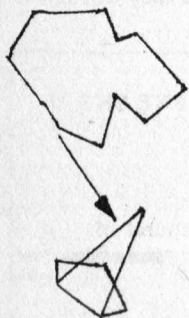


NOTE: When player shoots into one corner the wrap-around causes bullets to ap-

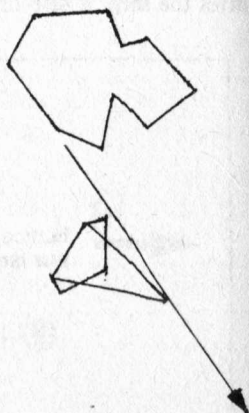
pear in all four corners, thus greatly increasing firepower.

the ship can shoot only at certain angles. If you don't move, there are certain areas of the screen you will never be able to hit. The farther something is from the ship, the more likely it will occupy one of the safe zones. If you cruise slowly, you can have any area in sight in seconds. The main thing to remember is to move while keeping control. It is also important to learn how to use turning and thrusting separately. Once you are moving, you can turn without thrusting, and thus shoot not only straight ahead, but also at various angles to your direction of movement.

Remember that you have shields. A quick pulse at the right time can save you, and can eliminate the risk of using a sudden thrust. Unfortunately for regular Asteroids players, the shield button is in the same place the hyperspace button used to be. Many people tap the shield button, expecting to be transported elsewhere, and instead, get hit as the shields drop.



It is possible to turn to avoid collisions with oncoming asteroids. Since your ship is somewhat thinner than it is long and because it rotates

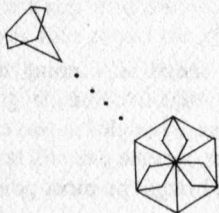


on its own central axis, you can point your ship in the direction of the asteroid and sometimes escape, suffering only a close shave.

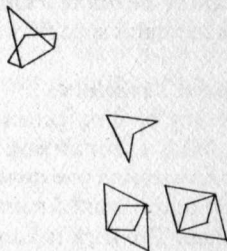
The asteroids obey the universal laws of video wraparound. Learn to anticipate where one will reappear. Since your shots also follow wraparound, you can often nail asteroids or ships that seem out of reach. Again, it is important to understand how wraparound works, especially for objects leaving the edge at an angle.

The game seems to check for your shot before checking for a collision. If a fragment is about to hit you, you can turn your nose to it and fire. As long as the shot is fired before the fragment hits the side of a turning ship, the fragment will be destroyed.

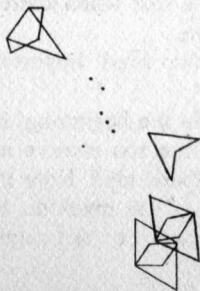
1. Fire a few shots to break up hexagon ship and hopefully destroy a couple of ramships in the process.



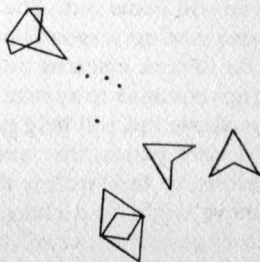
2. "Run away" from ramships to gain some distance.



3. Turn around and lay down a "fan" of fire at the point where the ramships cluster.



4. Put some more distance between you and the remaining ramships and then pick off the oncoming ships with precision shooting.



Since your ship is longer than it is wide, at times it is possible to avoid a collision simply by rotating. If an asteroid is heading for the top side of the ship, you can rotate the nose of the ship away from the object. Once it has moved past you, you can swing back and shoot it.

It is best to shoot large and medium rocks when they are either not too close or moving away from you. This cuts down the chance that a fragment will hit your ship. You can safely shoot the small fragments any time since they don't split into smaller pieces.

When a ramship appears, it contains six triangular segments. At first, it takes no offensive action. When it is hit, it splits into three pairs of triangles. Each pair also splits when hit. The pairs and single sections will actively try to destroy you. So, once you have made your first hit on a ramship, you must take care of the rest of it right away. The Advanced Techniques section contains specific ways to do this.

Advanced Techniques

The key to long games and high scores is winning new ships. With a bonus ship for every 10,000 points, a good player can stretch one quarter quite far. Though the player is allowed only a limited number of ships, a game can still last a long time. The trick is knowing what brings the most points, and avoiding dangerous situations.

On the first screen, destroy one asteroid without hitting any others. A ramship will come out right away. In the early game, you want as many of these as possible since they are worth big points.

When there is only one asteroid on the screen, hit it and a ramship will come out. The same holds true when there is only one medium fragment on the screen.

If the screen contains nothing but two small fragments, ramships continue to appear.

The above tips will help gain points in the beginning. But after 15,000 points, the ramships become too evasive and dangerous, so this strategy should be abandoned. Note that the above might be a changeable part of the machine, but whatever pattern it uses will always be consistent, not varying

from game to game (unless the settings are changed again).

When the small saucer appears, keep far from it. Pulse the shields occasionally, and try to hit the ship by using wraparound.

The ramships can be dealt with using the following technique

1. Face them and fire three shots (while also taking care of any rocks that might be in the way).
2. Turn 180 degrees and thrust once or twice.
3. Turn back toward the ships. Fire, rotate one increment left or right and fire again. If they get too close, repeat step 2. Keep playing this hit-and-run game until all ramships are destroyed.

Avoid thrusting between two ramships. They can converge on you, and even shields won't save your ship.

You can also take care of the ramships by moving away from them for a while, getting them to line up, then turning and firing.

With the aid of wraparound, a ship in one corner of the screen can send a shot out to any of the other three corners. While this allows the player to cover a large portion of the screen, it does have one drawback; they can also be hit by asteroids exiting from any of those corners.

Battlezone

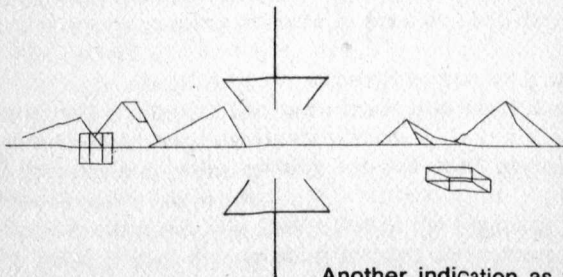
Three-dimensional graphics and a stark war ground turn Battlezone into an eerie contest that has attracted many fans. The player moves his tank with two control sticks, firing at tanks, super tanks, saucers, and missiles. Peering through the viewscope helps isolate the player from the real world, adding to the attraction of the game and the feeling of realism.

Getting Started

The main thing to remember is that each stick controls one of the tank's treads. Push both forward, the tank moves straight ahead. Push the left one forward and the tank arcs toward the right. Push one while pulling the other and the tank spins in circles, presenting a marvelous target for enemy shots and guaranteeing a quick death. You can have only one shot on the screen at a time, so *misses are costly*. These tips will help you get more mileage out of your quarters.



Even though there appears to be nothing in front of the player, a blip is shown on the radar scope directly in line of fire with the player.



Another indication as to a target in-line but not visible is that the crosshairs will point inwards as shown.

Keep moving, but be careful of backing up. If you back into an obstacle while a tank is tracking you, you might not be able to move out of the way before being hit. Still, many techniques call for backing up, so learn to keep track of the obstacles as you pass them.

Use the radar. It lets you know exactly where the enemy is with respect to your tank, and is often the only way to know the location of a tank. Many players use the radar almost exclusively, and look only at the screen when they are set up for the kill.

If you hear a saucer but can't see it, don't go looking for it. It will probably try to lure you into a dangerous position. In most cases, a tank will get you while you are hunting for the saucer.

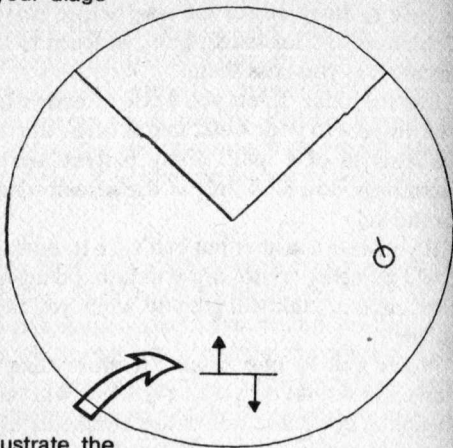
Never spin in one place for more than an instant. This maneuver should be used only when you must make a quick change of direction, and should immediately be followed by movement away from that location. The only exception to this is the technique described at the end of the Advanced Techniques section.

If a tank is far behind you (based on the radar display) and you hear a shot, immediately move perpendicular to the tank. This is accomplished by spinning 90 degrees (again, keep the spin brief), then backing up. Pull one handle, push the other, and use the scenery to judge how far you have spun. Then pull back hard on both sticks. This gives the best chance of avoiding the shot. As you back up, you'll probably see the enemy shot fly past in front of you.

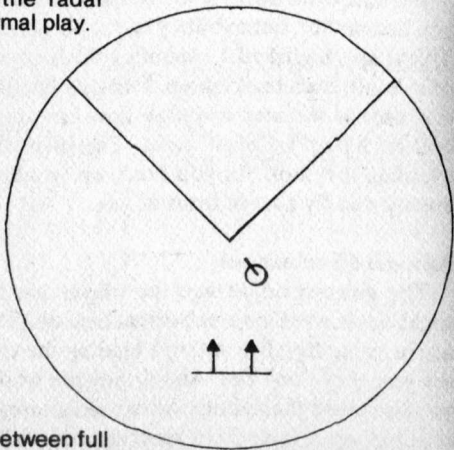
Advanced Techniques

The greatest advantage the player has is that the enemy tanks act in a rather mechanical fashion. They scan until you are in sight, then fire without leading the target. If they don't see you, they don't fire. And if they fire while you are moving, you can avoid their shots. Advanced strategy involves actions that prevent a tank from spotting you while allowing you to set up for a good shot. Coupled with this, the player must learn how to deal with the buzzbombs. Here are tips for high score and long play.

1. After you spot the tank on the radar scope, rotate until it is on one of your diagonals.

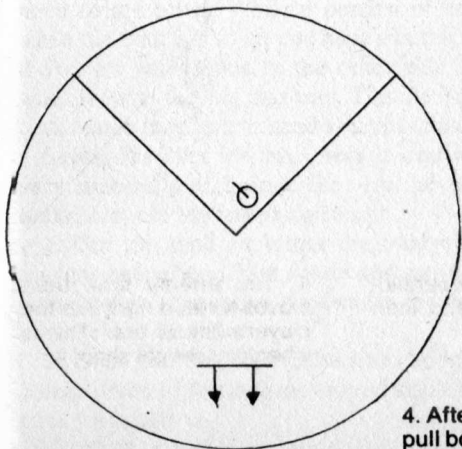
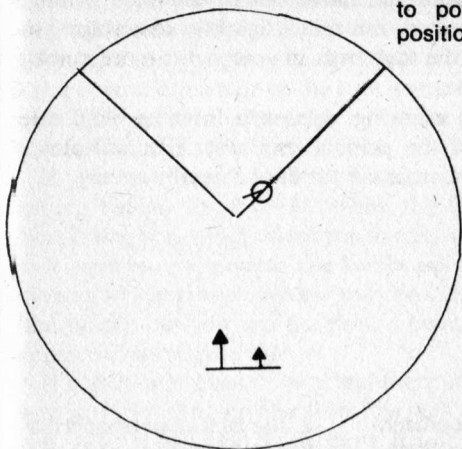


NOTE: These illustrate the positions of the player's handles. These are for demonstration only and are not represented on the radar screen during normal play.



2. By alternating between full forward and turning towards enemy tank, move it down the diagonal closer to your tank.

3. Once tank is fairly close, move forward to bring it behind you about 1/4 inch on the radar screen. It will start to point at your present position.



4. After waiting a short time, pull both sticks straight back and then turn until the enemy tank is in your sights. It will still be facing your old position, feel free to blast it.

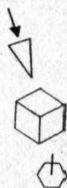
If a tank disappears into the distance, turn toward it while watching the cross hair. The sight will become brighter when the tank is in line with you. That's the time to fire. If the tank fires, spin 90 degrees and move out of the way. Though backing up is dangerous, this time it has one advantage: you will be able to get the tank back in your sights more quickly after its shot misses.

When a tank is scanning, approach from its blind side. Don't move across the path of its turret. You will almost never survive if you cross the turret of a nearby enemy.

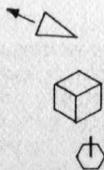
1. The enemy tank approaches the object, usually firing. It advances straight at player.



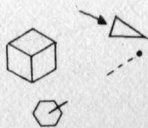
2. The tank stops when it hits the obstacle.



3. The tank turns perpendicular to the player and then backs up.



4. The enemy tank then moves forward right into the player's line of fire. This is when you should shoot it.



Track buzzbombs that come over the distant mountains, keeping the sight right on the bomb. Follow each turn. When the bomb comes close, it will move straight in. That's the time to shoot it. Another popular strategy is for the player to aim for the left side of the path the buzzbomb takes. When it first appears, it will go right, left, right, left. The first time it heads left, put your cross hair on the spot where it turns back to the right. The next time it gets there, you can blast it, leading the shot just enough to be sure of a hit.

If you have trouble with bombs, you can avoid them by getting behind an obstacle. While this prevents the bomb from hitting you, it also causes you to miss scoring opportunities, so it is not recommended. The bombs will also miss you if you have an obstacle right behind you. You can safely shoot at it (the bomb) but you run the risk of being trapped if a tank appears close to your side.

If a tank is in front of you, and there is an obstacle in the way, go right up to the obstacle. The tank won't be able to hit you. After it has fired a few shots, it will back up and move away. The tank always seems to use the same maneuver when leaving the obstacle. It will first back up to one side, then head to the other. While a portion of the body is exposed when the tank backs up, you have a better chance of hitting it if you set your sights to the other side, then nail the tank when it starts moving that way. This also works well for super tanks since they like to head straight toward you.

Saving the best for last, there is one very dangerous but very successful technique that can be used against enemy tanks. Just use the following steps:

1. Get the tank on either diagonal of the radar. If it is straight behind you, first rotate and move so it is to one side or the other, then move backwards. If it is to the front, push one stick or the other.

2. Once the tank is on the line, bring it forward with a combination of forward moves and adjustments with just one stick forward.

3. When the tank is about 1/4" from you on the radar display, move straight ahead, bring the dot to the side and 1/4" behind you.

4. Immediately move forward, bringing the tank back to the radar line.

5. As soon as the dot crosses the line, spin toward the tank by pushing one stick forward and the other back. As you spin, the tank will come into view. It is turning toward you, but you will always get there first.

7. As soon as the enemy is in your sights, stop and fire.

While this method always works, it has one disadvantage; if you miss, you are almost certainly dead. When using this technique, keep track of obstacles so that you don't back into them at crucial moments. With a bit of practice, you can learn to get any tank onto the diagonal, no matter where it appears. From there, any tank can be killed.

Berzerk

Hauntingly mechanical cries of "Kill the humanoid" and "Intruder alert" add a perversely paranoid appeal to this high-energy game. The playfield consists of a series of rooms, each with four doors, and several areas bounded by walls. The player, in the role of a hunted humanoid, must shoot the robots that pursue him, while avoiding their bullets. There are other dangers too. The electrified walls are fatal on contact, as are the explosions of destroyed robots, and if the player spends too much time in a room, Evil Otto, a smiling, bouncing ball of death, will appear, passing through walls and destroying whatever he touches. Otto heads right for the player, which perhaps explains his reason for smiling. Against all this, the player can do nothing but run and shoot. Unfortunately, Otto is bulletproof. As the game progresses, the robots change color, signifying advancement to the next level, at which the robots fire and move more quickly.

Getting Started

The hardest part for the beginner is mastering the controls. While the joystick-and-button combination is simple to use, it is different from the controls found in most games, and thus takes time to learn. The joystick determines the direction the player runs. If the fire button is pressed, the player stops moving and a bullet is fired *in the direction the joystick is pointed*. In other words, while running from left to right, you can't fire a shot at a robot below you. To do this, you would have to move the joystick downward before hitting the button. Keeping this in mind, here are some tips for new players.

When the game starts, and whenever you lose a man and are given another, all four doors are open. When you get to another room, the door through which you entered becomes electrified, so you can't run back through that door (a common reaction among beginners when entering an "overwhelming" room).

The yellow robots in the first room don't shoot back at you. This gives you a bit of time to get the hang of the game. But don't stay in there too long. Otto will eventually appear and

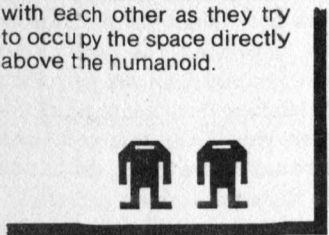
force you to leave or die. Note that Otto always enters by the same door through which you entered and that he always heads in your direction.

When you enter a room, shoot first at the robots directly in line with you. As soon as they are destroyed, start moving toward an exit, preferably one to the right or left. If there are many robots in one area, kill off those in isolated groups first. That way you can run toward the large group while picking them off. Just make sure to duck the shots they fire.

Plan ahead as you move. For instance, if a robot is above you and to the right, move up but be ready to fire right as soon as you are in line with him. Remember that the robot will also be moving.

Whenever possible, head for a side door instead of the top or bottom. One reason for this, as you've probably noticed, is that vertical moves are the slowest. Diagonal moves are the fastest, with horizontal motion lying between the two. Also, regardless of his main direction, Otto always bounces up and down. If you are above or below him, he closes in on you more rapidly than when he is moving toward you horizontally.

These two robots will collide with each other as they try to occupy the space directly above the humanoid.



NOTE: The human has the advantage, by firing diagonally, the robot will walk into his shots and not even get the chance to return the fire.

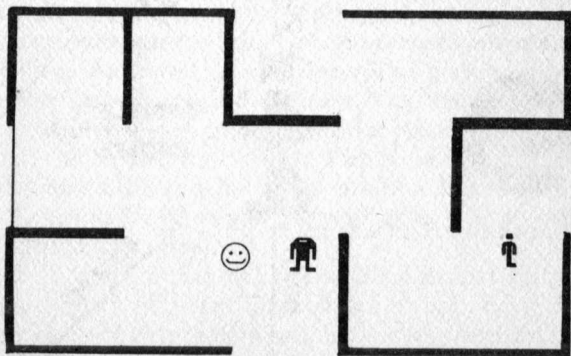


Heading for the side also gives you a better shot at all the robots in a room and increases the possibility that Otto will get any robots you missed. Wait until he has wiped them all out, then leave.

Again, kill *all* the robots in a room. This gives you bonus points if you escape alive. But this bonus is not worth dying for. There is nothing wrong with leaving a few behind when necessary. If you get all the robots but take too long and lose a man to Otto, you haven't gained anything. Ignore the taunts of "Chicken" and "Fight like a robot" The machine is just trying to goad you into making a mistake.

Don't forget that you (and the robots) can shoot diagonally. Learn to spot when a robot is in line with you on the diagonal. More important, try to anticipate when a robot is *about* to be on your diagonal.

Bullets are free. Fire frequently, but not constantly. You can't move when you are firing. And if you don't move, you'll never get out of a room ahead of Otto. Don't fire unnecessary shots at an area in which there are no targets. This slows you down considerably.



Evil Otto goes right for the player, passing through walls and in this case, even robots.

The player is positioned so that Otto will kill the last robot. After Otto runs into his own robot the player can easily exit the room.

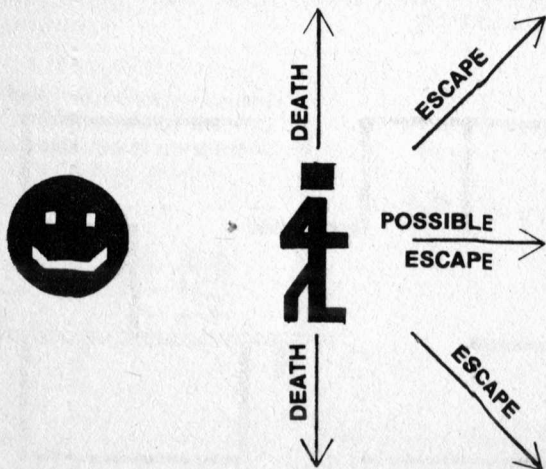
Keep moving. Whenever you aren't shooting, you should be heading for your exit. Not only does sitting still waste time, it also increases your chances of being hit by a bullet.

If you are running toward a robot, make sure you aren't too close when you shoot it. If you are close, stop moving until the explosion subsides, or move in another direction. The explosion is fatal if you run into it.

Watch out for walls. Many players survive a close encounter with a robot, then let their attention wander and run into a wall. You know you are getting too close to a wall (and close to being fried) when a section near you turns color and glows brightly. Be especially careful of the breaks in walls. Players seem to impale themselves on these end points more often than they run into unbroken areas.

Advanced Techniques

While it seems that the player has very little firepower against so many enemies, there are other ways to destroy



With Evil Otto chasing close behind, the player must choose his path of escape carefully.

On all but the higher levels, moving straight ahead is as quick or quicker than Otto.

robots. The robots are basically dumb. They shoot at almost anything that moves in line with them and tend to follow the player. This gives the human some powerful advantages. In essence, the robots have a rather simple program they follow, and can be controlled by the human who understands their actions. The following hints take advantage of this and other factors.

If a robot is near you and close to a wall, he can be destroyed easily. Move in the same direction in which the robot must move to hit the wall. If he is to the left of the wall, move to the right. Try to plan ahead so these maneuvers also bring you closer to your exit.

Robots can also be lured into shots fired by other robots. When a shot misses you, try to bring any robot nearby into the line of fire. This actually allows you to attack in two directions at once since you can also fire in the direction you are moving.

Use the "guillotine" technique. Fire rapidly past a corner, allowing a robot to walk into the line of fire. Since he can't fire at you until he is actually in line, this guarantees that your shot will hit first.

Move diagonally when avoiding a shot. This takes you out of the line of fire more quickly than a horizontal or vertical move. It also gets you where you're going faster.

As you move, try to "trap" robots in areas where Otto will get them. Maneuver so that there is as much distance as possible between you and them, and keep them between the door from which you entered and your present position.

Look as far ahead as possible. Plan a route and anticipate which robots will be in line along your path. It is better to run a course that brings robots into your sights than to wait for them to cross your path.

Not only can robots be killed with bullets and walls, they are also destroyed when they collide with each other. If two robots are above or below you, and are separated from you by a wall, they can easily be destroyed. Just move back and forth beneath them. Since both are programmed to occupy the space vertically in line with you, they will collide and be destroyed.

Centipede

A nice change from outer space themes, Centipede gets down to earth by pitting the player against hordes of pests. There are plenty of different types of action to occupy the player, with insects turning into mushrooms, scorpions poisoning mushrooms, fleas dropping from the heavens, and spiders pouncing on the unwary player. The diversity of the game makes it a bit tougher to master than the standard shoot-'em-up, but allows for a great deal of strategy on the part of the player. A bonus ship every 12,000 points provides the opportunity for extended play. The Trak Ball and fire button are just enough to allow full control without bogging down the player in a large array of buttons.

Getting Started

The player can move across the entire bottom of the screen, and can move up a distance equal to six or seven times his own height. This gives him a bit of leeway in dodging. But dodging is a last ditch effort. Every centipede has to be destroyed before a new set will appear, and those that reach the bottom add other complications to the game. The first step in getting started is learning to use the Trak Ball. Fire constantly at first. This will eliminate some of the attackers as you get the hang of the game. Learn what each character does—both how it affects the screen, and what happens when it is hit. Here are some guidelines for your first few games.

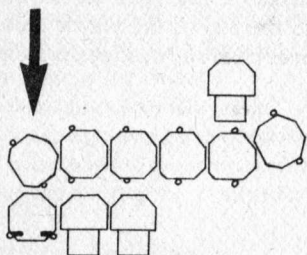
Clear out *almost* all of the mushrooms in your area of movement. If you get rid of too many, fleas will start dropping down, and you don't want that during your first few games (more on fleas later). But make sure to clear the first two or three rows entirely, and most of the rest of your area. The centipedes cascade downward and reverse direction after hitting a mushroom, making them tougher to hit, and speeding their descent. Mushrooms in the bottom two rows spell big trouble.

Low mushrooms can be cleared more quickly if you move right beneath them so that your gun is almost touching the bottom of the mushroom. The shorter the distance the shot travels, the sooner the next shot can be fired.

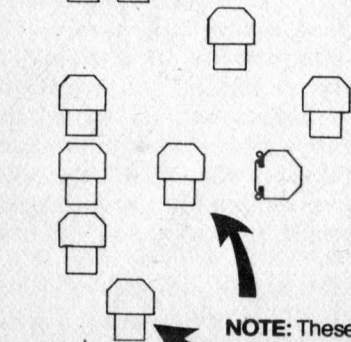
Learn to spin the ball and stop it quickly, so you can position your player anywhere without delay. Intuitive control of the ball is a major ingredient in good play.

In the beginning, beware of wild shots. You don't want to hit a centipede in the middle. It will split into two segments

NOTE: Keep edge rows clean of mushrooms so that you always have a clear shot all the way up the screen.



Try to shoot a string of centipedes, when they are "funnelling" between objects. When shot, each head will fall down and the tail sections will keep following in a nice straight line. The player should continue to shoot the falling centipedes.



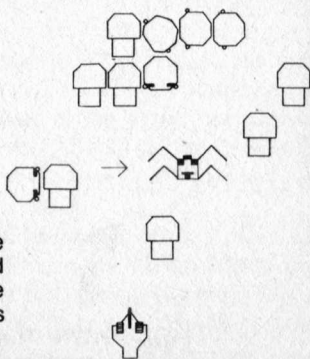
NOTE: These low mushrooms are left so that the player does not have to worry about fleas dropping down unexpectedly.



and you won't be able to eliminate it with one concentrated burst of fire. Always go for the head first. A head is worth 100 points, a body segment is worth only ten. When you shoot a head, it becomes a mushroom and the next segment turns into a head. In essence, every body segment you shoot robs you of 90 potential points.

Don't waste time. If there are no targets in range, shoot a few mushrooms. It takes four hits to clear a mushroom, but each partially-hit mushroom is worth five points when you lose a base. While this may seem insignificant, it could make the difference between ending the game or winning another base.

When you have several targets, go for the lowest centipede. It is the most dangerous to you since it can collide with your base. Also, when a segment makes a full pass across the bottom, a head will be added to the top of the player area. Heads keep coming until the player clears all centipedes from the bottom area of the screen.



The shorter the distance between the player's gun and the bottom of the spider, the more points it is worth if it is shot.

This area to the side of the spider is safe because it cannot reverse its direction.

Get the fleas as quickly as possible. They leave a trail of mushrooms, which makes an easy downward path for the centipedes. While such paths help funnel the centipedes into your fire, too many of them make the game more complicated than necessary. Fleas appear only when the number of mushrooms in the player's area falls below a predetermined number. While this can be set to various values, most machines seem to use three or five for the critical number.

Since spiders never reverse direction, let them pass you, then sneak under and shoot them. Let them get as close to you as possible before firing since this results in more points.

When the scorpion crosses the screen, it poisons mushrooms. These mushrooms can be recognized easily since they change color. When a centipede touches a poison mushroom, it tumbles straight down at a high speed. The scorpion should be shot at as quickly as possible. This gives you time for more shots if the first one misses and it cuts down on the number of mushrooms it poisons.

Make sure your ship doesn't creep slowly upward. It's easy to do while moving back and forth, and you may end up a row or two above the bottom before you realize it. This can be dangerous when the centipedes get low.

Advanced Techniques

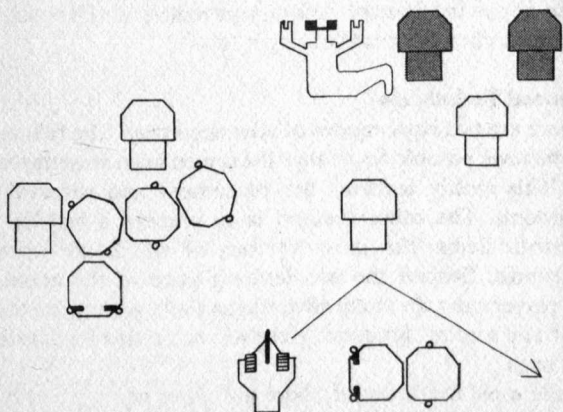
There are two basic modes of advanced play. The first is to try, whenever possible, to arrange the screen in an advantageous way. This mostly involves the placement and removal of mushrooms. The other method is to prevent a buildup of dangerous items, the most obvious of which are poison mushrooms. Despite the accelerating pace of the game, a good player can gain many advantages while getting the most out of any scoring situation. Here are some tips for blasting more bugs.

While rapid fire is useful, there are times when it can hurt you. It is possible for a close centipede to be 'out of phase' with your shots, slipping between them. When a centipede is close, it is sometimes best to pause, then aim and fire as it passes by. Another technique for those that slip between shots is to keep up the rapid fire but move slightly in one

direction. That can get the centipede back in phase with your shots. A different method is to move to the side of the screen. Since the centipede changes direction there, it is in range for slightly longer. But if you do go to the side, watch out for spiders.

Fleas that fall near the sides often set the player up for a pounce from an unexpected spider. If you do go for one of these fleas, make sure to watch not it but the spot where a spider would appear.

Try to hit strings of centipedes when they are between either rows of mushrooms, or a row of mushrooms and the edge of the screen. A hit on the head will bring the rest straight down, allowing them to be blown away with rapid fire.



When centipedes are on the bottom row, wait until they are about to collide with you, then move up and position yourself behind them. This

allows you to always use the bottom edge of the screen as a reference to your position.

The scorpion poisons any mushrooms it touches. When a centipede hits one of these, it will come straight down at a rapid rate. To avoid a potentially devastating attack, remove poison mushrooms as soon as possible. If the centipedes do start to drop, get right to the bottom of the screen, under the largest string, and hold down the fire button. Be very careful not to rise above the bottom row since this increases the chance that a falling centipede will kill you. You can usually wipe out most of the attack this way. If they get too close, be ready to spin away but keep control of your location.

When one centipede reaches the bottom, and others are coming close, move up just enough to avoid the bottom one, then drop back down. In other words, don't treat the top and bottom as the only possible locations. Get used to moving to intermediate positions.

Try to keep at least one clear row that extends all the way to the top of the screen. This will give you a good shot at the scorpion whenever it appears. If possible, have a clear area on each side, so that you can shoot the scorpion as soon as it appears by spinning quickly all the way to the end and firing. Again, watch out for spiders, and don't linger by the edge to admire your shot.

When a centipede with more than one segment is directly above you, never shoot the head. It will turn into a mushroom and the next segment will collide with you.

Always go for the highest scoring possibility, since score is what earns new bases for you. This means hitting every scorpion that appears, shooting spiders when they are low, chipping at mushrooms when there is nothing else to shoot at, and shooting the head of the centipede.

Donkey Kong

Donkey Kong is really different, and seems to be attracting crowds wherever it appears. Donkey Kong is one of the first arcade games to have a theme beyond just shooting and surviving. The player must climb ladders, avoid barrels and other obstacles, and attempt to rescue a girl from a gorilla. On the first screen, he must merely reach the girl. Later, he must remove rivets, causing Kong to take a fall. Further on there are elevators and falling girders and beyond that the player faces conveyor belts with plates on them. Part of the appeal of the game is seeing what comes next. It should be noted that there are different settings possible in Donkey Kong machines; some allow techniques that don't work on others. Thus, this is a perfect example of the sort of game you can learn by watching. If you see someone doing well, take note of the techniques he uses. And if you see someone doing poorly, learn what techniques to avoid. Beginners often find themselves spending many coins without getting past the first screen. Here are some tips to get you to advanced screens faster.

Getting Started

Timing is the most important factor. You must learn to coordinate the jump. The first time you play, it is all right to stop before a jump, just to get the feel of the machine. But you must learn to jump when running, timing the leap so you don't come down too soon or start too late. Multiple jumps in succession take more practice and should be avoided until you can make single jumps without difficulties.

You grab objects above you by jumping for them. When you get the hammer, it will automatically start a smashing pattern, which lasts for about twelve seconds and gives you full protection in the direction you are facing, as well as protection above you. Any barrel or fireball that is hit by the hammer will be eliminated. A color change occurs seconds

before the hammer disappears. When you are holding the hammer, you can't climb ladders or jump, but you can smash oncoming barrels and fireballs.

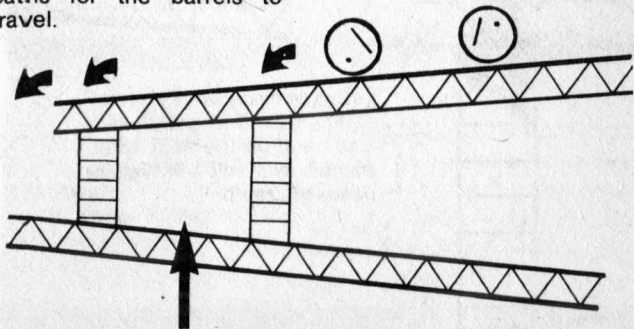
Don't cut off your escape routes. If you are past the last ladder on the lower end of a level and a barrel comes along, you will have to jump. If there are two barrels together, you might be in big trouble. They can be jumped, but the timing is tricky.

Most good players ignore the hammers on the first screen and head right for the top. The longer you spend on this screen, the more barrels Kong throws. The points you miss by not smashing barrels will be more than made up for by the higher points available on later screens. Also, the longer you stay on each screen, the faster your bonus points decrease. When they reach zero, the man is lost.

It is crucial to think ahead. When barrels are above you, decide how you will move for each possible path the barrel might take. Barrels can fall down ladders as well as roll down

It is crucial to think ahead. When barrels are above you, decide how you will move for each possible path the barrel might take. Barrels can fall down ladders as well as roll down ramps.

These are the three possible paths for the barrels to travel.



If the player stands here, he can choose many different paths depending on where the barrels go.

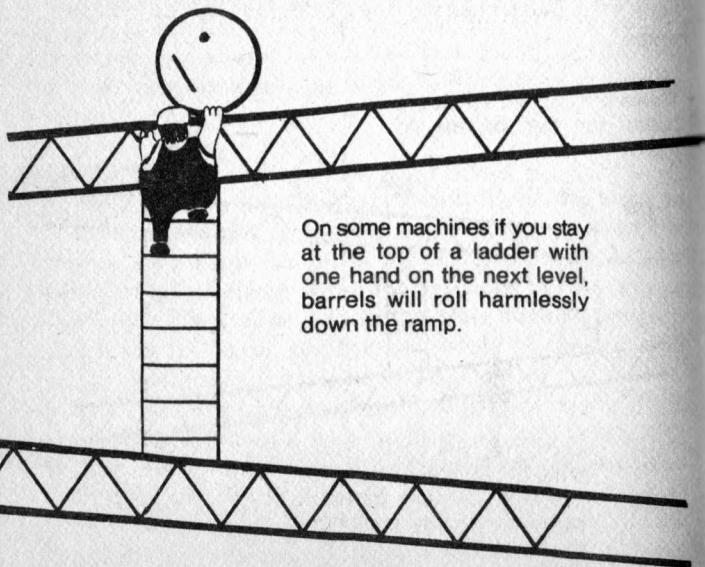
Be especially careful of the ladder directly to the right of Kong. Many players get almost to the top, then are creamed by a barrel that rolls down that first ladder.

Certain positions are safer than others. Getting between two ladders on the uphill end of a ramp is good. If a barrel falls behind you, there is no problem. If it passes the lower ladder, you can either climb that one right away, or jump the barrel and head for the other ladder.

It is possible to jump two barrels in succession, but your timing must be just right. It helps if you move the joystick in the direction from which the barrels are coming, but they can be jumped even if the man is standing still.

Try not to run from a barrel. It will catch up with you, and even a jump probably won't be of much help. If you are caught in this situation, you must act before the barrel gets too close. Throw the joystick in the direction of the barrel and hit the jump button.

When you get to the second screen, go for the top rivets first. These will be harder to reach later when there are more fireballs on the screen. The rivets that are near a hammer will



On some machines if you stay at the top of a ladder with one hand on the next level, barrels will roll harmlessly down the ramp.

be easy to get later since you can run across them as you smash fireballs. Also, the lower levels have longer ledges, giving you more room to maneuver. Work your way down and you will avoid most of the hazards.

Never go for a prize if doing so would put you in danger. No matter how many points you get, if you are killed before finishing a screen, you must return to the start of that screen.

As you cross each rivet, whether by running or jumping, it will disappear. When all the rivets are gone, the building collapses, bringing Kong down on his head.

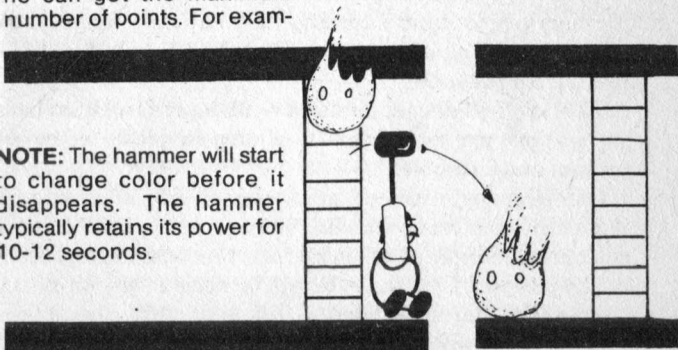
Besides the fireballs, there are two other dangers: falling through a hole and running off the edge of a girder. You must jump the holes to get across. Remember, when you are holding the hammer, you can't jump. Any attempt to cross a hole while holding the hammer means death.

The third screen is similar to the first. The main thing to watch for is the first barrel. It goes diagonally from top left to bottom right. If you start running right away, you can reach the ladder without being hit.

When the player is smashing with a hammer, he should always be positioned so that he can get the maximum number of points. For exam-

ple, this illustrations shows the player destroying fireballs from above as well as in front of him.

NOTE: The hammer will start to change color before it disappears. The hammer typically retains its power for 10-12 seconds.



The player can not cross over an open rivet hole while holding a hammer.

Advanced techniques

On some machines, if you are at the top of a ladder with one hand on the next level, barrels won't fall on you. Unfortunately, there is no way to tell without trying it a few times whether a specific machine has been set for this. If it has, use the technique. It saves time and lives.

On the second screen, it is possible to jump the fireballs. But this is dangerous since they can change direction at any time.

As soon as the last rivet is pulled, you are safe. If you and a fireball are heading for the last rivet from opposite sides, go for it. The second you reach the rivet, the danger is over. Remember, you can also get rivets by jumping them.

On the fourth screen, with the elevators, the only real dangers are falling beams and miscalculated leaps toward elevators. Don't jump from the level where you start; it's too easy to misjudge. Go to the top, then wait for an elevator.

The middle fireball is easy to avoid. The one on the left can be a problem. Take your time here, and wait for it to leave the bottom level.

On the way to the top, let a girder pass the ledge on which you want to land, then jump and stand still, allowing the girders to bounce past you.

At the top of the elevator board, move, then stop. This prevents girders from bouncing on you. Each move should take you to the next clear space over which they bounce. Don't rush for the ladder.

The only real danger on the seventh screen is the fireballs. By this time, you should be able to jump the plates on the belt without much trouble.

On the conveyor screen, get to the top side, and wait until there are no plates or fireballs. Then go up the ladder. If you can't go all the way up the ladder just wait with the joystick in the up position. That way, you will be on your way up as soon as the full ladder is available.

Eliminator

Eliminator resembles a form of "space billiards" with one deadly pocket. The pocket is the eliminator base, a large circle with a tunnel running from the edge of the base to the middle. Inside, the eliminator ship sits, waiting to attack. Outside, in the single-player mode, the helper ships fire shots at the player, trying to force him into contact with the base. Shots themselves do no harm, but they do push whatever ship they hit. This is a nice twist. The player can destroy ships only by forcing them into the base. And the base can be destroyed only by a direct hit down the tunnel. Though the game allows two players to play in competition, the longest game can be achieved by having two players play *as a team*. Working together, two people can last a long time. Though the following hints concentrate on two player games, many of them can be used by a single player.

Getting Started

If you are about to be hit by one of the enemy ships, spin in a tight circle. The shot will not deflect you as much that way. Continue spinning until you are pointing in the direction you want to go, then switch to straight thrust.

If a spin brings you into a wall, let up on all thrust for a second. Otherwise, you will bounce off the wall and be easy prey for a volley of shots from the enemy ships.

Avoid the urge to use rapid fire. Any shot on the screen will disappear as soon as another is fired. Unless a target is very close to you, rapid fire has the same effect as no fire.

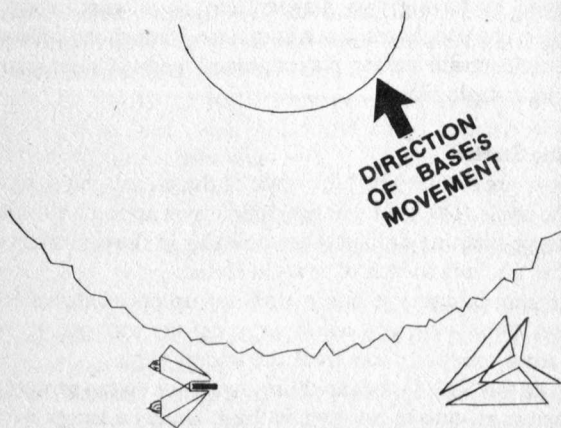
When there is no clear shot at the tunnel, stay far away from the base. That will cut down the chance of being bounced into it by enemy fire. Until you are really familiar with the controls, don't try for shots when the opening is close to a wall. It is very easy to turn into the base, or to hit it when trying to fly away.

Your shots bounce off the walls. At times, you can rebound a shot into a ship. Also, watch out for their shots rebounding into you. If you are very skilled, or lucky, you might try bouncing a shot into the opening of the base when it is in a position where your ship can't get directly at it.

Being shot by the enemy ships is not disastrous. Don't panic when you see a shot coming. Just get ready to set your ship under control.

Once you become familiar with the controls, you can confuse the enemy ships by flying a circle around the base.

When you lose a ship, a new one appears in one of the corners of the screen. Wait a second and make sure you know where you are before thrusting. Many beginners start thrusting immediately, before taking note of the corner they occupy, and thus abruptly learn where the ship is by seeing it fly into the eliminator base.



The player should wait here without firing until a clear shot at the Eliminator ship is possible.

The Eliminator ship will flutter between the base and the edge of the screen, making it a bit disoriented and thus and easy target.

Advanced Techniques

The biggest danger is the eliminator ship. It fires a missile that can kill you. But there are ways to destroy it, and you must be able to destroy it to get long games. When dealing with the eliminator ship, two players working together have a great advantage over one player. With a bit of teamwork, the game can be extended a long time.

It is helpful to know when to expect the eliminator ship to emerge from the base. When inside the base, it changes color as it grows slowly. The last color is red. Also, watch the small dots flying in orbit around the ship. The fewer there are, the sooner the ship will come out.

When the eliminator ship comes out, you have a few seconds to line up your shot. Don't shoot until the force field disappears. Shooting the ship when the force field is on just makes the ship bounce back inside momentarily, causing it to emerge at a different place, and forcing you to line it up again. As soon as the shield drops, shoot at it. Your shot will cause it to bounce and lose sight of you. Move in and keep shooting until it bounces into the base, but don't move too fast or you will ram the ship and be destroyed.



This ship will be destroyed by Eliminator's shot if it doesn't hit the player's ship.



When the Eliminator ship shoots at you, turn away quickly and if possible, have the shot hit an enemy ship.



If things get out of control, go to a corner. The eliminator ship can't ram you (it bounces into the walls before it can touch your ship) and seems to have more trouble shooting you there. Keep hitting it from the corner to prevent it from getting you clearly in its sights.

Another technique is to fly straight away from the eliminator. When it fires, zigzag out of the way. Also, try to head for one of the enemy ships. That way, when you dodge from the line of fire, the shot will destroy another ship.

A helpful technique for gaining points is to trap a ship in a direct line between you and a nearby wall. Once you open fire, the ship will bounce from the wall and back into your line of fire. Keep firing since each hit is worth points. It's just like dribbling a basketball, and the feeling of belting the little pest can't be beat.

When the eliminator ship is following you, go through a tight area between the base and a wall. As the eliminator follows, it will become slightly "disoriented," wavering somewhat between the wall and base. When this happens, turn and fire at it. When two people are playing, let one occupy the attention of the eliminator while the other goes for a shot at the base. Remember, shooting the base is the main objective. Do it as often as possible. Alternate this assignment with your partner so the score doesn't mount unfairly on one side.

If one player loses all his ships, the other must fight multiple attackers. To avoid this as long as possible, alternate roles. Take turns occupying the attention of the eliminator. *And keep out of your partner's line of fire.*

If you are trapped between the base and a corner, there is one way out. If you approach a wall from a very shallow angle, moving almost parallel to the wall, you can sometimes get half your ship outside the line that borders the playfield. This makes it possible to slip past the base with very little clearance.

Frogger

All the player has to do in Frogger is get home. Unfortunately, his path is strewn with an assortment of dangers. First, there is a highway with cars and busses crossing in opposite directions. The frog must avoid these obstacles. Beyond the highway, there is a median. This is safe during the first round, but contains dangers for players who advance beyond the beginning screens. Next is a river, and the only way across is to jump on moving items such as turtles and logs. Any frog that falls in the water is lost. It seems this frog can't swim in deep water. Once across the river, the frog has to leap into one of the five niches on the far bank. If the player fills all the niches before time runs out, he gets to try again—with faster obstacles and added dangers. Control is all through one joystick, which can make the frog jump forward, backward, left, or right.

Getting Started

There are three basic causes of swift death among beginners: rushing, ignoring the availability of sideways moves, and not knowing all the dangers. Once you get your first frog across, the game becomes much easier. But that first trip can be pretty tough. People have been known to play many games without getting across the river. These hints will help prolong the life of your frog.

Take your time at first. Many beginners lose a frog in the river, then rush to get back there. Just accept a lost frog as a total loss and don't hurry across the road. But keep an eye on the timer. If it runs out, you lose.

Don't become fixated on forward movement. You can move left and right, and there are times when you must. Even backward jumps can save a frog. It is better to forfeit a bit of progress than to lose a frog.

When you cross the highway, jump behind a car, then, if necessary, move along *in its direction* until the next opening appears. Since the cars in any row always maintain the same distance from each other, you are safe when following a car.

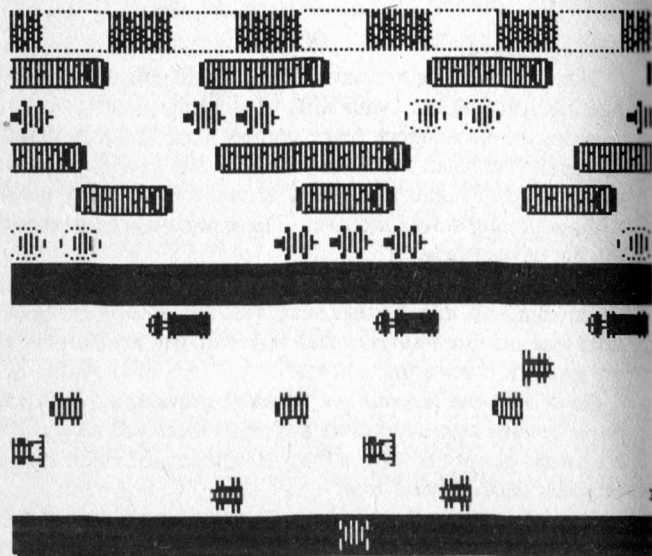
Think ahead. Look for paths that can take you across several lanes, and try to plan your moves for several

jumps—especially when on the river. Learn to watch the entire road instead of just one or two lanes.

It is especially important to think ahead when crossing the river. Don't depend on a log appearing in the nick of time to save you (except when going for the leftmost niche).

There is only one group of diving turtles in any row on the river. While the others stay one color, these sinking ones change. Avoid them at all costs. If you should happen to jump on them by mistake, get off the moment they start to flash.

Beginners often lose several frogs before realizing that they must jump in the water, not on the land area, at the top of the river. Also, remember that any frog that is carried off the edge of the screen is lost. If you are heading toward the edge and can't jump forward, jump back or move sideways along the length of the log.



Before jumping forward, player should wait for enough room or simply jump towards the river in this case.

While in the highway lanes move in the direction of the cars.

Try to fill the leftmost niche first, since it is the hardest. Get on a turtle that is floating leftward. Let it float close to the edge. If a log appears ahead of you, wait until the last moment, then jump forward twice, first onto another log, then into the niche. If no log appears, go backward. Keep an eye open for escape routes.

Advanced Techniques

Once the niches are filled, the player finds himself back at the start, facing more obstacles and added hazards. While the basic techniques are the same, there are some additional tips that will extend play and create higher scores.

The game seems to think the frog is a bit wider than he appears. What looks like a close shave to the player is often registered as a squashed frog. So be careful of cutting it too close. It doesn't matter whether you think you have made a safe jump. The machine is the one that is keeping score.

If you can safely escort a lady frog across the river, do so. When you're on her log, let her jump onto you. If you jump toward her, you might accidentally go off the log.

If you are about to jump into a niche and a ladybug appears in the one immediately to the right, go for the bug. If it appears farther over, don't bother. It will disappear before you get there. It is better in such cases to ignore the bonuses and fill the leftmost niche.

When alligators appear at the higher levels, remember that while you can't land on a mouth, you can jump on the body.

As the game progresses, speeding cars will also appear. They move much faster than the other lanes of traffic, and are much more dangerous. You can tell they are around by the roaring engine sound.

Snakes also proliferate during later rounds. Snakes on the median pass back and forth. You can safely jump behind one, except when it is near the edge. At the edge, it will turn around and get you.

When more and faster cars appear, avoid the urge to rush. Take your time and look ahead.

Gorf

Gorf presents the player with five mini-games. The combination offers variety, but also makes the game tough since each portion has its own strategy. Adding to the player's problems, the game barks out an insult at him when he loses a man. But the player who survives a wave gets to see the next round, and a player who scores well enough gets promoted beyond space cadet status.

Getting Started

The combination joystick and fire button in Gorf has a nice feel and simplifies control of the ship. Though the beginner might feel some awe at the thought of a series of different attacks, he has one thing in his favor. Each attack is of less intensity and difficulty than those that would occur if the game had only one type of attack. For example, the Astro Battle portion, though similar to Space Invaders, has fewer aliens, and the intensity of their attack is not as great as would be found in Invaders. Thus, someone who has trouble getting through a whole wave of Space Invaders still has a good chance of getting through the Astro Battle portion of Gorf. Here are some specific tips to promote you beyond the rank of space cadet.

The first mission you face is Astro Battle. Invaders are dropped into place; they then begin moving and shooting. You are protected by a shield, but enemy shots blast holes in it.

When the Astro Battle invaders are being dropped into place, they cannot move or shoot. You should shoot as many as possible at this point since you don't have to worry about moving targets or enemy fire.

Pay little attention to the shield. It will let your shot through and block enemy shots. But if you depend on the shield, you

may be unpleasantly surprised when a shot comes through an opening. The best approach is to treat every shot as lethal.

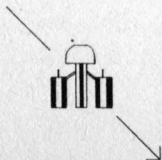
As in Eliminator, a shot in Gorf will disappear if another one is fired. If you see a shot is going to hit a target, avoid the urge to fire another. But if a shot is a clear miss, fire again right away. This will increase your effective rate of fire.

In Laser Battle, you must deal with two laser cannons protected by escorts. The cannons fire beams that extend from their ship to the bottom edge of the screen, forcing the player to avoid two shots at a time.

The laser cannons are the main threat. You should try to wipe them out early in the round. Don't get trapped between two shots. Also, watch out for the last shot of a dying cannon. Even after the cannon is gone, this shot will be lethal.

Avoid being drawn into cannon fire by the escort dive bombers, and take advantage of your ability to move in all directions when dealing with the escorts.

Galaxians is similar to the normal arcade version. The player must contend with attackers that both move above him and swoop down in formation. The Galaxians in Gorf move more quickly and are harder to kill than those in the standard Galaxian game.

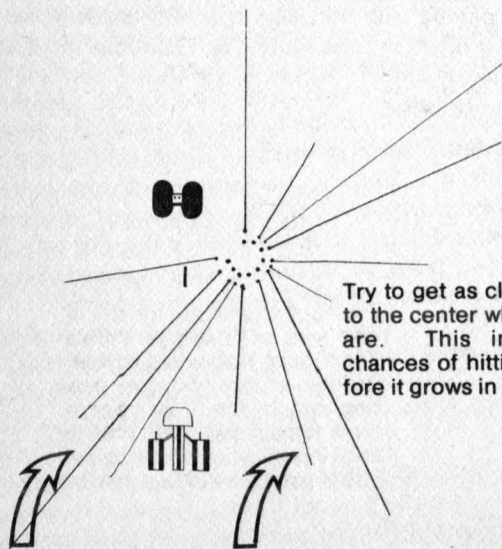


To shoot a laser cannon get on one side of it before it fires. Then, drop diagonally through its line of fire. As you pass beneath it, fire. The cannon must remain stationary until its shot disappears which gives your shot plenty of time to hit.

To deal with the Galaxians, get as close as possible, shoot, then pull the stick back until the shot hits. Repeat this technique, using rapid jerks of the joystick. Again, if a shot is going to miss, fire another right away.

Be defensive. Don't allow your ship to become trapped. Stay in the mid screen area, so you have a buffer zone for dodging.

The Space Warp mission has a black hole at the center of the screen. This releases objects that fly an outward spiraling orbit. Since you can move upward, it is a good idea to get as close to the black hole as possible in the early part of the wave. This maximizes your rate of fire.



Try to get as close as possible to the center where the "eggs" are. This increases your chances of hitting an alien before it grows in size.

These are not spikes, they are harmless and should be ignored.

When the Gorfian robot appears, fire as many shots as possible. If you don't kill it fairly quickly, back away from the center of the screen and wait until the robot has gone off the edge of the screen.

In the Flagship mission, you must fire a shot into the core of a ship. Your shots eat away parts of the ship, and at times cause chunks to fall off. This is a difficult mission.

The shield offers no real help. Just blast a hole in the center and fire through it.

When debris falls from the ship, you can either dodge it or shoot it for extra points. In tight situations, don't worry about the points.

In general, don't be afraid to run from the enemy in Gorf. You'll find that successful players do a lot of dodging.

Advanced Techniques

Gorf is simpler than many games, and few advanced methods are necessary. The old and usually useless survival tip, "Just shoot everything and don't get hit," really does apply here. Still, there are a few fine points that will help sharpen your game.

In the Flagship mission, the upper left and right corners are safe spots. You can't be hit there, but you shouldn't linger and allow the ship to move lower.

In Space Warps, the first enemy comes from the black hole at a nine o'clock position. From there, successive attackers exit in a counterclockwise pattern. Knowing this, you should always try to get close to the exit point and blast each object that comes out.

To kill a laser cannon, move close beneath it before it fires. Then shoot and immediately move away on a diagonal line down and to the left or right.

The position of the stick has no effect on the distance the shot travels. You do not have to move up to make a shot reach the top. Once you fire, the shot will travel all the way unless it hits something or you fire another shot.

Kickman

Everyone seems to be cashing in on the cute cartoon-like characters and antics of Pac-Man, and Midway is no exception. Kickman is one of their newest releases and is rapidly becoming a favorite of guys and gals alike. The player, a clown perched on a unicycle, moves left and right under racks of objects and attempts to catch them on his head. If an object drops below the clown's reach, the player can press the Kick button and try to kick the object back into play.

Getting Started

Play the odds. Position yourself under the rack with the most objects. The next object will probably fall from it.

Be prepared for the worst. Always be ready to move quickly to a distant point on the screen. For example, you may be on the extreme right when a monster falls from the rack second to the left. Also be aware of the most "dangerous" hanging object that could fall.

Become familiar with the controls. This game uses a Trak-Ball, which you must be able to stop dead in its tracks with accuracy.

Remember, once *eight* objects are caught on your head, play will stop momentarily for points to be tallied up. After points are awarded, you will be able to move again, positioned under the fourth rack from the left.

Always try to catch the Pac-Men without having to kick them back up. They are worth big points and return to the rack if kicked.

Don't press the kick button unless you are prepared to stop all movement. Your clown stops as he begins to kick, and cannot move again until his kick is complete.

You can kick an object that is anywhere between your knee level and slightly below your feet (almost on the ground).

Advanced Techniques

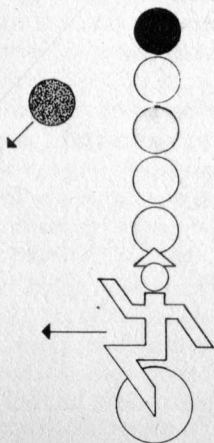
On challenge racks, the first object is thrown from the left balcony; from then on they alternate. Use this knowledge to your advantage. Always catch objects in the order that they are thrown.

Avoid bombs at all costs, steer clear of them. You can identify a bomb before it is thrown by the distinct hissing sound of the fuse burning.

If an object is falling and you cannot catch or pop it, trap it between your cycle and the wall. As it drops to the ground, kick it back up and try again. Repeat this step until it is caught.

If you have two uncaught falling objects, keep spinning back and forth, kicking them up each time. Speed and dexterity are needed. To reduce fatigue, try to get both objects on the same side of the unicycle. If you don't, you will spend too much time and energy trying to position yourself to keep kicking the objects up enough to be caught.

On the first round you pop balloons on your hat. To gain extra points, if you feel confident, play around a little by kicking a balloon around without popping it. You can rack up



If you miss your first chance to catch an object, try to pin it between the wall and the stack of balloons already caught on your head. This controls its descent and makes it easier to kick back into play.

points easily this way. Try to kick around a high value balloon to maximize your earnings.

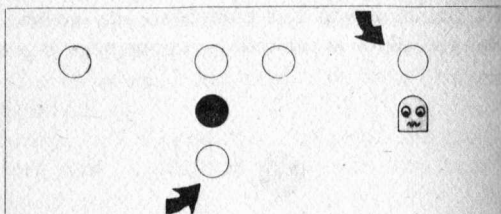
Remember, it is always better to sacrifice points than to lose a player.

The objects in the left hand balcony indicate what level of difficulty you have reached. The object on the top is the most dangerous in the level you are playing, watch those in the racks.

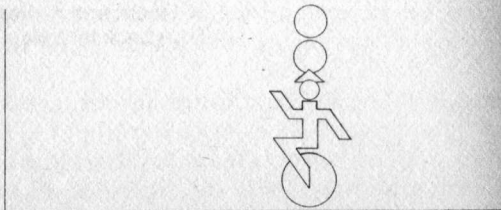
As the game progresses, objects fall slightly on a left diagonal, not directly down. The more dangerous an object is, the greater the diagonal.

Objects falling from the end columns are the easiest to catch. Simply spin the Track-Ball as hard and as quickly as you can in that direction. Your clown will always stop in position to catch the object.

This stack contains a monster, the most difficult object that could possibly fall.



This stack has the most objects in it, therefore there is a greater chance of something falling from here than any other stack.



The player has positioned himself to be able to quickly catch

an object falling from the most "dangerous" stacks.

Lady Bug

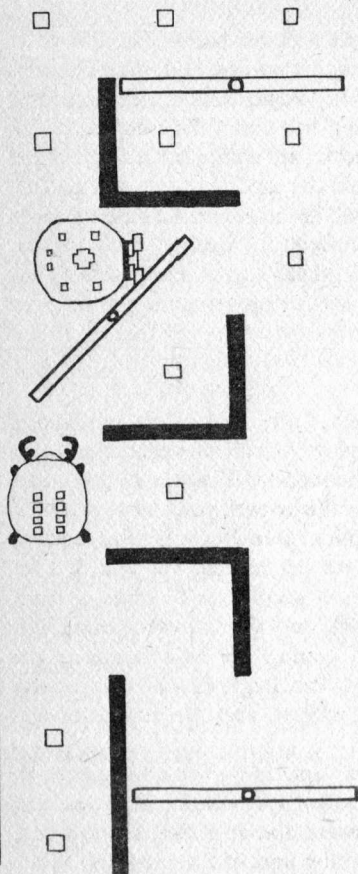
Lady Bug is played in a maze eleven paths high and wide. Unlike Pac-Man and other similar games, Lady Bug contains rotating turnstiles. While the Lady Bug can move these turnstiles, the predatory insects chasing her can't. The object of the game is to move around the maze, eating dots, hearts, and letters. The player must avoid the skulls in the maze and the predatory insects, which dwell in the center and are released periodically. Though the insects are deadly, they can be eliminated if the player tricks them into touching a skull. As added features, Lady Bug offers opportunities for both an extra bug and an extra game.

Getting Started

As in several other games, Lady Bug offers conflicting goals: high score and long play. A fruit or vegetable that is worth bonus points can be found in the center of the maze. Since the fruit is protected by the insects, you can't eat it until all five predators have left the center. But it is dangerous to hang around when all five are out hunting for you. So, for maximum playing time, it is a good idea to clear a maze quickly and get on to the next one. On the other hand, this strategy prevents you from getting the high bonus points offered by the fruits and vegetables. Beginners should probably concentrate on completing mazes, and the following tips should help.

Learn to use the turnstiles. Generally, you can survive by pushing a turnstile at the point farthest from a pursuing insect. If you are moving upward and an insect is below you, turn right or left through the top part of the turnstile. When moving down, go through the bottom segment. If you are moving from left to right, use the rightmost part of the turnstile. When moving from right to left, turn into the left end of the turnstile.

The insects slowly gravitate toward the part of the maze with the Lady Bug. There are two strategies for escaping them. First, try to stay in a part of the maze away from the



When a bug is chasing you, go through the farther side of the revolving door, thus trapping the bug and preventing him from pursuing further.

The path of bug will be blocked after turnstile shuts.

areas occupied by insects. This should be easy when there are only one or two insects out. Second, when an insect gets on your trail, try to lead it into a skull.

Besides the dots and skulls, the maze contains hearts and letters. These hearts and letters are worth 100 points when blue, 300 when yellow, and 800 when red. Most of the time,

they are blue. They remain red for just an instant, and if you are more than a dot away when they turn, you won't reach a red feature in time. From red they go to yellow, and can be reached if you are within five or six dots.

At the start of a new board, you should concentrate on getting to the three hearts. Find the shortest course between them and get them only when they are blue. The first one multiplies all further scores on that board by two, the second one by three, and the third one by five. Thus each dot that you eat after eating the blue hearts will be worth not ten, but fifty points. Following that, clear out the central dots. This eliminates the need to go in there later when you might get snagged by an emerging insect.

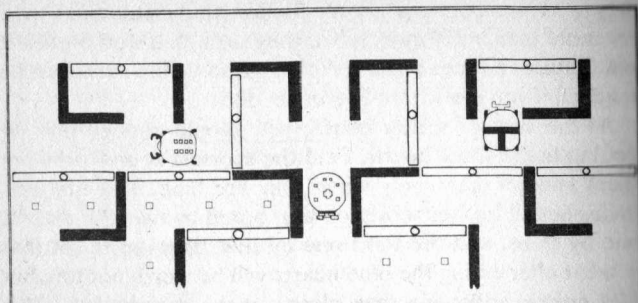
If the screen contains a skull at the top, clear this area next. This opens the way for insects to meet the skull since they generally move upward after leaving the center.

Clean the dots methodically. Don't leave isolated ones you will have to return for later. There is nothing more maddening than having one remaining dot in the lower left while you and the predators are in the upper right.

Remember, unlike Pac-Man, there is no way to out-distance your pursuers. Turnstiles and skulls are your only defenses.

If you eat the letters E-X-T-R-A while they are yellow, you win an extra Lady Bug. If you eat the letters S-P-E-C-I-A-L while they are red, you win a free game. It is worth going after the red letters for another reason: they are worth 800 points each. While it is theoretically possible to get a red letter from one space away, the best method is to hold the nose of your bug on top of the letter, wait for it to change to red and then go over it. Bear in mind, that by eating a red letter after you have eaten the three blue hearts, you will earn not 800, but five times 800 or 4000 points.

Unfortunately, as in so many games, the strategy which earns the most points is also the riskiest because it leaves you out in the open, exposed to the predatory insects. Thus, high point games are not necessarily the longest ones.



These four doors should be shut horizontally. This cuts off the entire top end of the board and leaves only one opening. Bugs will wander around for quite some time trying to get out.

Advanced Techniques

To do well at Lady Bug, you must make the most of scoring possibilities while using the defensive techniques fully. This means getting every vegetable, trying for the EXTRA and SPECIAL, and temporarily trapping the insects so they give you as little trouble as possible.

Try to get the maximum advantage from a skull. Once you have eaten all the dots and other goodies near a skull, position the turnstiles to leave as much access as possible to the skull. This is almost sure to result in at least one dead insect.

To get a red heart or letter, wait with your nose over it when you sense that the blue period is almost over. But do this only when it is safe to wait.

Be careful when going after the fruit or vegetable in the center of the Lady Bug maze. Once uncovered, it does not always stay uncovered since the predatory insects, once destroyed by a skull, are reborn in the center. Thus, you may be heading for the plum or parsley only to have an insect reborn at the very moment you enter to eat it. It is usually safest to go in to the center for a bonus fruit or vegetable immediately after an insect has left.

For highest scores, advanced players will want to eat all the fruits and vegetables in the center. Since the next maze appears as soon as the screen is clear of dots, hearts, and letters, it is necessary to leave one or two dots near the center of the screen to be eaten after eating the center fruit. You don't want to have to travel far after eating the center fruit, so the best dots to leave are the one immediately over the center fruit and one each to its right and left. This means that as you come in to gobble the center fruit, you will eat one of the two side dots and the center dot. Upon eating the center fruit, you emerge and eat the remaining side dot and the next maze appears.

While it is impossible to trap an insect totally, it can be temporarily restricted to an area with only one exit. The best place to do this is in the second row from the bottom. If you get an insect in there while all the turnstiles are horizontal, you will have it out of your way for a bit. Another good trap is the top three rows of the maze. The two turnstiles closest to the center should be vertical, the rest should be horizontal.

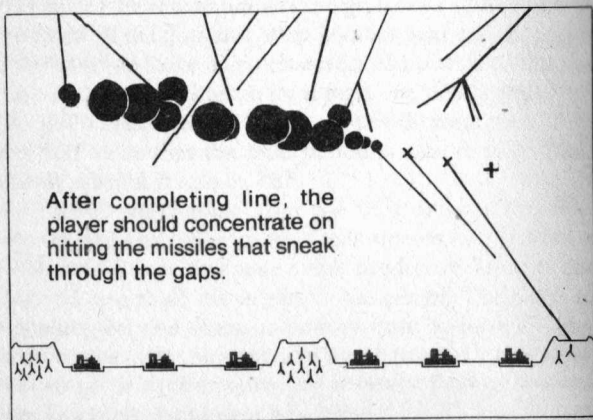
Missile Command

Someone has pushed the button and the final war is on. You have six cities to defend against nuclear attack by commanding three bases armed with antiballistic missiles. On your side you have rapid fire—the ability to launch many shots in an instant. However, each base has a limited number of missiles. Against you are not just missiles, but airplanes, killer satellites, and smart bombs which can dodge your shots.

If a base is hit, it can't shoot again that round. If a city is hit, it is gone. When all the cities are lost, the game is over.

Missiles are aimed using a cross hair on the screen and a Trak Ball. Each missile explodes with a burst that expands, then contracts, destroying anything it touches. By avoiding some common mistakes, beginners can quickly get the hang of the game.

Fire continuously at a slight angle across the entire screen. This creates what is known as an "absorbsion line."



Fire from base at opposite edge from where absorbsion line starts.

Getting Started

The cardinal rule is: *Don't defend dirt*. Beginners usually shoot at everything that moves. If a bomb is headed for a city or base, it should be eliminated. But if it is heading for rubble, don't worry about it. If you run out of missiles, you will soon run out of cities. The only exception to this rule is when you have lost your last city but are close to the score needed for a new one. In this case, your only hope is to go for as many points as possible.

Learn to get the cross hair to the right spot quickly and accurately. Spin the ball in the right direction, then stop it. Overshooting a target and overcorrecting an error are the most common problems for beginners.

You can move the cross hair at the start of each wave, even before the bombs start. For the first wave, get it close to the top. For later waves, bring it up to the height where planes and satellites travel.

If two missiles are close, but one is lower than the other, shoot for the low one. The explosion will take care of the higher one.

Don't stop to admire a good shot. Once a missile is fired, pick your next target and move to that spot. It's better to plan ahead and know what your next target will be even before the previous shot has been fired. Basically, you should pause only long enough to fire.

In the later waves, it is almost essential to throw up a line of defense by moving quickly across the screen. Start near a top corner and move across and slightly downward, firing from the base opposite the side where you start. This puts up an absorption line that will get most of the missiles. As soon as the line is finished, drop down to get any missiles that have sneaked through.

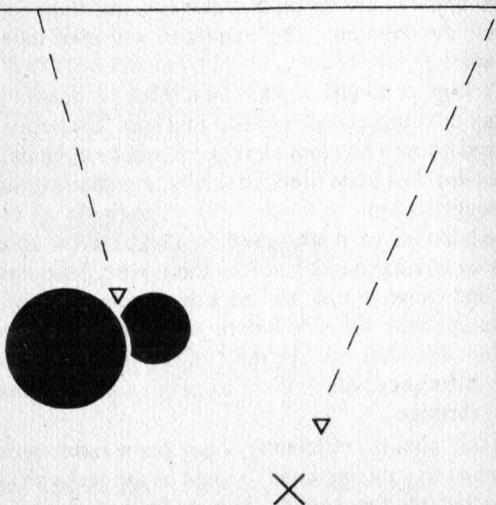
Lead the missiles sufficiently. They move faster each wave, so you must learn to increase the lead as the game progresses.

Learn to tap the button. If you hold it down, several missiles will be launched. If you aren't moving fast enough when this happens, you are just wasting shots.

Advanced Techniques

As the game progresses, the major changes are increased speed and additional types of enemy attack. On the positive side, scoring potential also increases. And, with a bonus city for every 10,000 points (this has been increased to 15,000 in some arcades), a player who makes it to the higher levels can make one quarter last until the arcade closes. The successful player must make the most of each shot. The danger of running out of missiles increases in the later waves. Here are tips for advanced play.

There will usually be a point at the start of each wave where a plane or satellite and several missiles will intersect. Sometimes, the plane will reach that point first. Put up one shot in front of the plane, leading it enough so the explosion will take care of the missiles above it. Avoid overkill. Any



Flank smart missile with two missile blasts. While it is avoiding one blast it will be hit by the other.

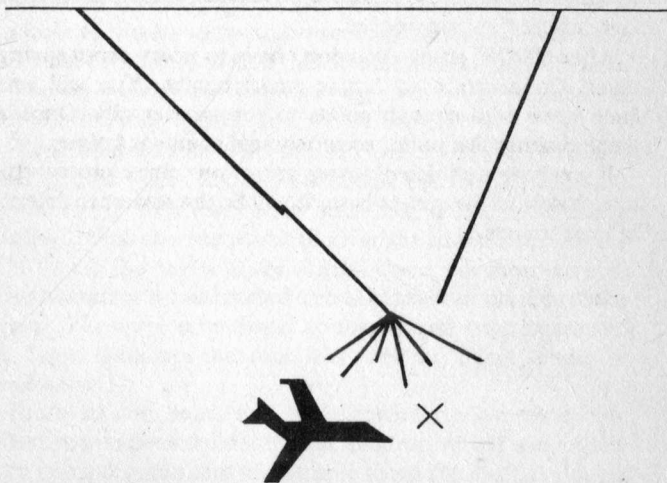
Smart missiles require very little lead. Your explosion should detonate just as smart missile passes over "X."

shot aimed at an already-doomed missile costs the player both points and ammunition.

Use the end bases first. This can be vital when you need a quick shot at a missile close to a city. The center should always be saved for last since its shots are faster and usually have the shortest distance to travel.

In the middle of a wave, if you must decide between saving a base and saving a city, it is usually best to save the base. The exception would be when the city is your last and you haven't earned enough points for another, or the base is almost out and the others still have plenty of shots.

Always try to place your shots where missiles will converge. This will give you a higher ratio of kills per shot, and will increase your score since you get points for unused ammunition. It will also help prevent depleting your bases—one result of overkill. Remember, empty bases result in dead players.



A well placed shot can knock out a group of missiles. In this example this one shot will probably destroy most of the oncoming objects.

If possible, wait for a missile to "mirv" and then shoot a bit below the point where they break up.

Satellites and planes should be killed before they cross too much of the screen. They launch more missiles, adding to the targets you must shoot. And, since the missiles are launched low on the screen, you have less time to deal with them.

Keep track of which cities are lost. It is easy to waste shots defending rubble in the heat of later waves.

The smart missiles are the most dangerous objects on the screen. They will dodge any shot that isn't very close to them. The best way to hit them is to be perfectly accurate with your shot. Since that isn't always possible, another approach should be kept in mind. Flank the missile with two shots, placing the second slightly lower than the first. The smart bomb will dodge from one, right into the blast of the other.

Learn to play without ever stopping the cross hair. The trick is to move it across the desired spot, hitting the button at the right time. Sweep the screen, moving horizontally with slight vertical deflections as required by each target. Then sweep back the other way. This is similar to laying down an absorption line, but is more selective since the shots are fired only where they are needed.

After 800,000 points, you don't have to worry about saving cities. Concentrate on hitting smart bombs. You will end each wave with enough points to get another city. Once a game reaches this point, your only real enemy is fatigue.

If you have a choice of saving one of two cities, protect the one closest to the center base. It will be the easiest to defend in later rounds.

Mousetrap

The prosperity of Pac-Man has motivated many arcade game manufacturers to create imitations. Of all the maze games inspired by Pac-Man, Exidy's Mouse Trap has been the most successful to date. The player maneuvers his mouse through a maze gobbling up bits of cheese and dog bones. All the while he must avoid contact with predators, the six cats and a swooping hawk. Although this game is patterned after Pac-Man, it incorporates a feature which makes it a much more complicated: player-controlled doors.

Getting Started

The most difficult thing in Mouse Trap is the operation of the door buttons. There is no foolproof method for mastering control of these buttons, but practice makes near-perfect. Never allow your eyes to drift from the screen to look at the buttons themselves; this breaks your concentration. Try to operate all three buttons with one hand; never pull your hand from the joystick to press a button under any circumstances. If you do, your mouse stops moving and is easy pickings for any cat that may wander by.

Your worst enemy is the hawk. It can fly above the maze, passing over walls without hinderance. You can tell a hawk is about to fly overhead when you hear a loud screeching sound. Unless you are about to clear the maze, head for the "IN" box at the center of the screen. Once you enter the box, your character is transported to one of the four corners of the board. The hawk is confused by these rapid movements and its flight becomes aimless. Do this as many times as necessary.

Store up dog bones and use them only when necessary. When you do press the dog button, your mouse will temporarily turn into a dog and thus will be able to eat the cats. Try to eat as many cats as possible when you do press the dog button.

Keep the yellow or blue doors open near the center "IN" box. If these are shut the chances are good that a cat will be trapped in there. You want to be able to get to the "IN" box without waiting for cats to get out of the way.

Advanced Techniques

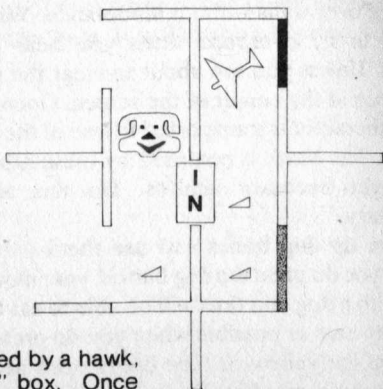
When you enter the "IN" box you may well find yourself next to a cat when you materialize. Be ready to press the dog button when you appear, but wait until you are sure of your position before pressing it. If you do appear near a cat, by all means, turn into a dog and eat it.

There are certain places on the board where you can trap the cats by closing the right combination of doors. This technique is useful at times, but don't become dependent on it.

While learning a pattern is fine for Pac-Man, it is not recommended for Mouse Trap; there are too many variables that could bring an early demise to your mouse.

The most depressing thing that can happen to you while playing is to hit the dog button only to find you have no more bones left. The bone symbols next to your score represent how many more times you can change into a dog. Glance up there periodically to keep track of the number of bones left.

The hawk can pass right over walls and closed doors.



When being chased by a hawk, head for the "IN" box. Once you enter you will be teleported away and the hawk becomes "stupid," losing track of you.

Pac-Man

Pac-Man has achieved an amazing popularity among both male and female players, perhaps because it is so different from most other games and is relatively nonviolent. The player races through a maze, gobbling dots and avoiding ghosts. In each corner of the maze is an energizer that enables the player to eat ghosts for a short period of time. The period decreases with each screen. When all the dots have been eaten, the player starts a new screen with faster ghosts. Near the center of the maze, special goodies such as fruit appear. Eating them gains points for the player.

When Pac-Man first came out, players soon learned that certain patterns allowed them to traverse the whole maze without being killed. Unfortunately, while there are still patterns for some machines, no pattern will work for all machines. A route that is successful in one arcade will fail miserably in another. This doesn't mean that the player shouldn't look for successful paths; it only means that any path contained in this book would be useless. There are, however, tips that will help a beginner to survive longer while he looks for workable paths.

Getting Started

Pac-Man is a game that can be learned by watching. If someone does well, take note of the path he uses on the first few screens. Also, notice that some paths involve not just routes, but also short pauses at specific places.

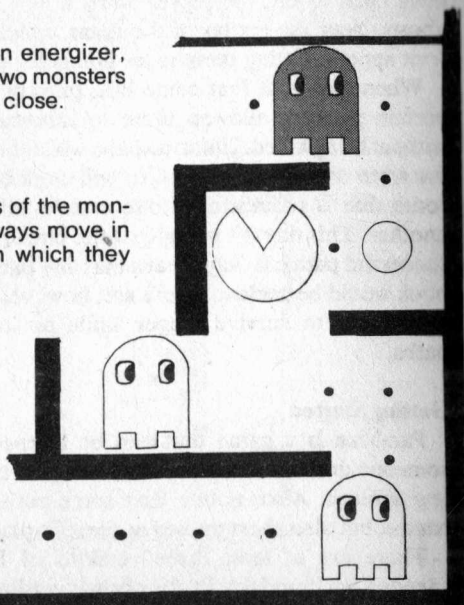
There are at least three versions of Pac-Man: normal, speeded, and random. In the normal version, patterns are not hard to find. The speeded version takes quicker reflexes, but still allows patterns (and patterns that work on the speeded version can be used on the higher levels of the normal version).

In the random version, you just have to rely on reflexes. It is best to learn the game on the normal version. Watch a game or two and take note of whether the ghosts always start out following specific paths. If they don't, the game is a random version.

If a monster is very close and chasing you, turn corners or go through the tunnel. You always move faster in the tunnel, and will be able to increase the distance between you and the pursuer. You also move faster when traveling down a corridor that has already been cleared of dots. Remember that you can move the joystick before reaching a turn. Whenever you signal a move toward a wall, the Pac-Man will maintain his current direction until he has a clear path for the turn. This is a big time saver in tight situations.

Before eating an energizer, wait for at least two monsters to become very close.

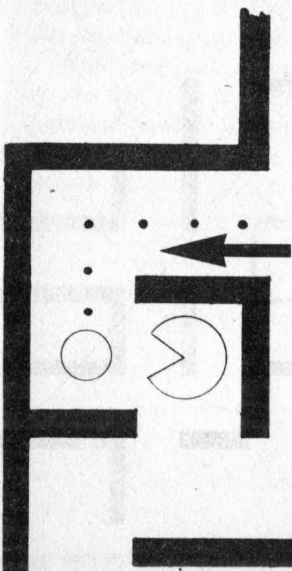
Watch the eyes of the monsters. They always move in the direction in which they are looking.



QWIL'82

The player should wait with the joystick in the up direction if he wants to keep the Pac-Man stationary.

• Save the energizers for near the end of the screen, except when several ghosts are close to you. It is a waste of potential points to eat one when no ghosts are close. Once you eat an energizer, all the ghosts will turn blue. You can eat them only when they are blue. The effect of the energizer works for only a short time; the ghosts flicker a few times before returning to their inedible state. Always try to get at least one ghost, but don't take any chances. Each additional ghost eaten on any energizer is worth twice the value of the previous ghost (the sequence starts at 200 points, then increases to 400, 800, and finally 1600). Still, this is no place to take risks since any points you miss can be made up by the value of the fruit on the next screen, and you can't get there if you lose your men by taking chances.



Since these are the last dots on the screen, they should be eaten after the energizer is. Eat the energizer first and then eat at least one monster.

If you eat the dots first, like this, the board will end just as Pac-Man eats the energizer and thus he can not gobble up any monsters.

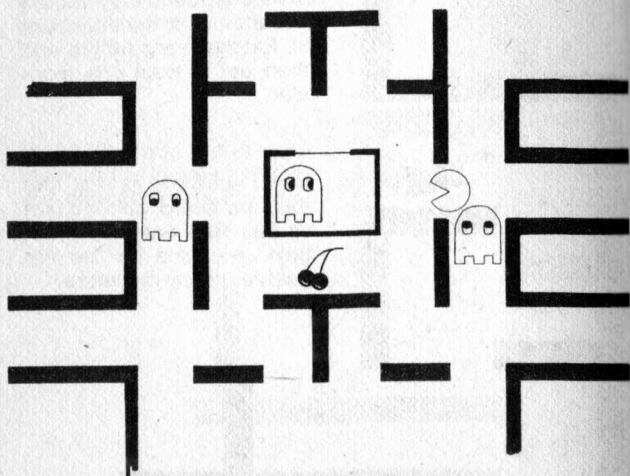
Make clean sweeps of areas. Don't leave isolated dots that you will have to return for later. The more efficiently you clear the screen, the better are your chances.

Avoid the center until all the ghosts are out of the inner area. A ghost cannot harm you until it is totally out of the pen, but don't risk passing in front of the opening unless absolutely necessary.

Whenever possible, eat the prizes that appear near the center. *This is the real key to high scores.* Prizes appear twice per screen, and their value increases as the game progresses.

Once you eat an energizer, keep track of the flicker of the ghosts. After the fourth flicker, they will become dangerous again. It's better to pass up a ghost when the time is close than to risk losing a man.

When you are about to head into one end of the tunnel, check the other end. If a ghost is about to enter there, you might be in for a head-on collision.



When being chased, turn corners to gain distance. In this case the player can turn either right or left but left is the better choice for two reasons.

1. There is a monster at the other end of the tunnel.
2. The player can easily eat the prize and receive the bonus points.

Advanced Techniques

On higher levels, the main changes are the speed and patterns of the ghosts. Once a player has found a path that works in the lower levels, he will have to make slight variations in his original strategy for successful completion of advanced screens. The only way to learn is to survive, and the following tips should help in that area.

Watch the eyes of the ghosts. They always travel in the direction they are looking. At times, you can safely follow behind one of them, but be sure to keep a close watch on the eyes.

Rapid switches in direction may confuse the monsters. This can sometimes save you from what appears to be a hopeless situation.

At very high levels, don't even try for the ghosts. The energizer doesn't last long enough. Just concentrate on clearing the maze and getting every fruit.

While any path that gets you out alive is great, look for routes that offer the fewest close encounters and the fewest points of possible foul-up. In general, try to clear as much as possible before reaching any dangerous situations or decision points.

Phoenix

Phoenix starts out looking just like many of the other games, with attackers above and the player's ship at the bottom. But the attackers don't just move calmly back and forth. They break formation and swoop down at the player while dropping bombs. The player who has blasted two screens of birds may think he has seen it all, but there is more to come. In the third and fourth round, eggs appear, crossing the screen and growing larger. They turn into birds that dive at the player. And there is more. Once the player has passed the birds, he must contend with the mother ship. A huge saucer hovers over him. To destroy it, he must shoot through the bottom, and through a revolving rim. Once a clear path is available, a shot to the center kills the ship's alien pilot. Then the cycle starts all over. The player also has a shield he can use, both as protection and as a weapon. It protects him from all collisions, destroying any bird it meets, but it doesn't last long and can't be used continuously. Here are some tips for beginners.

Getting Started

On the first screens, the birds don't start swooping immediately. Get ready to shoot right away. The more you blast in the beginning, the easier it will be later. Start hitting the fire button before the birds appear in formation above you. That way, you can get off a few extra shots when they do come into view.

At the beginning, one strategy is to move back and forth across the whole bottom, firing as quickly as the game allows. Don't fire blindly; make each shot count since you can have only one on the screen at a time except during the second attack of each series. This pattern is fine in the beginning, but it can be dangerous once the birds start to swoop.

Shoot the descending birds as soon as possible. They are the biggest danger. They are also worth more points when swooping than when they are in formation.

Watch out for the sides of the screen. Birds frequently swoop in from there. Since the birds are capable of wraparound, take note of their direction and angle when they leave the screen. That will give you an idea of where they will reappear. Also keep track of how many birds are below you. If you think one is about to reappear at the bottom, use the shield.

Learn proper use of the shield. Don't depend on it when you can shoot your way out of a situation. Also, be prepared to react the instant it goes off. Beginners are killed most frequently just as the shield drops.

When you reach the third and fourth rounds, shoot at the areas where the eggs cluster. The sides of the screen are best. The middle is also good, but doesn't work as well as the sides.

The eggs slow down near the edges making them easy targets.



Shoot where the eggs cluster and slow down, this increases your chances of hitting them.



Advanced Techniques

Most people get the knack of making it through the first four screens fairly quickly. The big problem is the mother ship. It takes time to blast through the bottom. The player also has to contend with attacking birds and fire from the ship. This can be a deadly combination. The only way to get high scores is to learn to do away with this ship. The following tips will help you get there in one piece, and show you how to destroy the ship.

When the birds are at your level on the bottom, move with them, but be prepared to hit the force field as soon as they start to fly up.

Remember that you can fire twice as fast during the second wave of birds. You should be able to clear all or most of them before any start to swoop. Though the firing rate is increased, it is still a good idea to try making every shot count. Even with rapid fire, it is easy to put a shot in the spaces between the birds.

The force field is also a good weapon against the large birds. When a bird dive bombs you, wait until the last possible instant, then hit the field. If you do it too soon, the field might not last long enough. This is one time when you don't want to anticipate too much.

When fighting the mother ship, shoot all but one or two of the birds. This will prevent the attack force from being replenished, and diminish the number of attackers.

Concentrate your fire near the center of the mother ship. Once there is a hole, make sure to shoot and move. The ship becomes much more aggressive with its bombs when you are close to destroying it.

You don't have to wait until the bottom has been cleared before going for the rim. Whenever you duck away from the center, take a few shots at the rim where it is vulnerable on either side of the ship. Some players like to destroy the rim first. This method puts them near the edge and also allows a few shots at the birds right at the beginning of a wave.

Qix

The old Etch-A-Sketch was never like this. In Qix, you to draw rectangles on the screen. Every time you enclose an area, it fills in with color. When 75% or more of the screen is filled, you move on to the next level. This would all be relatively simple were it not for a few features designed to put a quick end to your stay on the screen. First, there is the Qix. One player has described it as "a scintillating, ever-moving, multi-colored pattern of near-parallel lines." In other words, you have to see it to know what it looks like. If the Qix touches any portion of your line before an area is filled in, you lose one of your three Stix. Helping out the Qix, are Sparx. The Sparx travel along the lines bordering the screen and the lines created by the player. The Sparx are fatal on contact.

Getting Started

Someone playing Qix for the first time might find it a bit confusing. There is no gun for the player to shoot, no aliens to shoot at, and no background of stars. There is just the player, the Qix, and some Sparx. Once a player has adapted to the concept of the game, he will discover that the strategy is fairly simple. There are, however, some factors a beginner should keep in mind.

Your player is represented by a small diamond, the Stix. On the first round, it appears in the middle of the line at the bottom of the screen. Whenever a man is lost and replaced, the player appears on the spot where the Qix pulls together and touches the line.

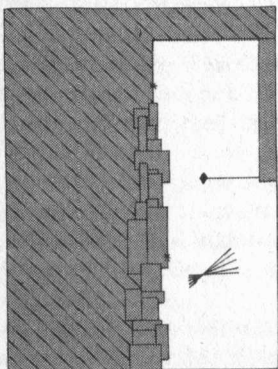
A good player learns to wait patiently waiting for the Qix to move to a distant area of the screen before proceeding with his drawing. You don't have to move immediately from the base line unless a Sparx is near. If the Qix is close, you can afford to wait a few seconds. Eventually, it will move away.

There are two draw buttons, one for fast movement, the other for slow. While fast draw is safer when covering long areas, sections enclosed with slow draw are worth many more points.

Your goal is to draw enclosed areas, using the line that your stix leaves as a trail. To complete a screen, you must enclose 75% of it. If you aren't holding down a draw button, you can move only along lines that border areas already filled in. In one version of Qix, you can move along any line (even if the line cuts between two filled areas); in the other version, you can't move on any part of a line that is bordered on both sides by filled areas. When you are holding the button, you can make new lines on the screen.

You can't reverse direction on an unfinished segment. And you can't complete an area if it leaves out a portion of a line. In other words, you can't move up and then draw a small rectangle at the end of a line. The whole line must be part of the finished area. The only time you don't have to worry about this is when a line is already the border of a filled area.

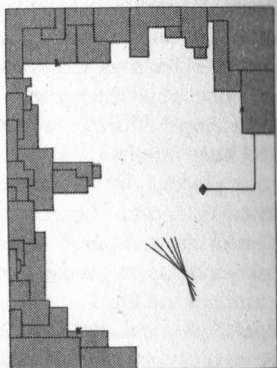
A spiral pattern can be deadly. But if you find yourself spiraling inward, it is possible to escape. You simply move back out, following parallel to the original spiral if necessary, then complete the area before the Qix hits the line.



RIGHT

Go straight up the middle, dividing the screen in half.

Use slow draw to fill in large areas as long as it is not too risky.



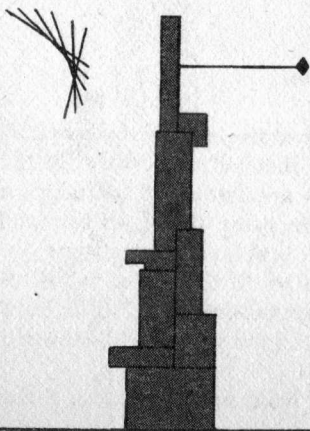
WRONG

Don't run along the border cutting up little sections. The time spent is just not worth the small area you are enclosing.

The larger the area you enclose, the more quickly you fill the screen, but completing large areas is dangerous. Thus, it is best to work in small pieces—but keep your eyes open for any opportunity to enclose a large part of the screen.

If you release a draw button, or attempt to back up on a line, a fuse will form. The fuse remains stationary for a moment, then begins to burn the line. There is always enough

The Qix would have to go all the way over this "break-water" to hit the player's line.



time to hit the button or correct your direction, so the fuse is not a great danger.

The Sparx are easy to avoid. Basically, you just have to go around them. If one is following you on a line, loop around behind, forming a small rectangle. This will save you from the Sparx and add to the area you have filled.

The Sparx will not travel onto an unenclosed segment. You are in danger from them only when traveling along a line that is on the edge of a filled area. You can always escape by starting a new line. The only danger when you do this is from the Qix.

At the top of the screen is a line that burns at both ends. This is the timer. When the timer runs out, the Sparx turn into Super Sparx. These will actually follow you onto unfinished lines. Your best defense is to complete the screen before the timer runs out. If you are unable to do so, you can still outrun the Sparx, but you must be quick and careful.

Also at the top of the screen, there is a number representing the percentage of the board that has been filled in. This is important since, if you are close to 75%, you don't want to take any risks. On the other hand, you get a bonus for every percentage point over 75. This is where you get the big points, so, if you are at 73 or 74 and can safely fill a large section, go for it rather than a small section. The number of points you will earn is substantial and definitely worth a bit of a risk.

Advanced Techniques

There are several strategies that work well with Qix (and countless strategies that fail miserably). By using the right combination of slow and fast draw, and taking advantage of several features of the game, the player can safely fill in 75% of the screen in a fairly short amount of time.

The way to win is to cut the screen in half. Some players move along the border, building small blocks. But this approach can be deadly. It cuts down your area of movement and limits your escape routes.

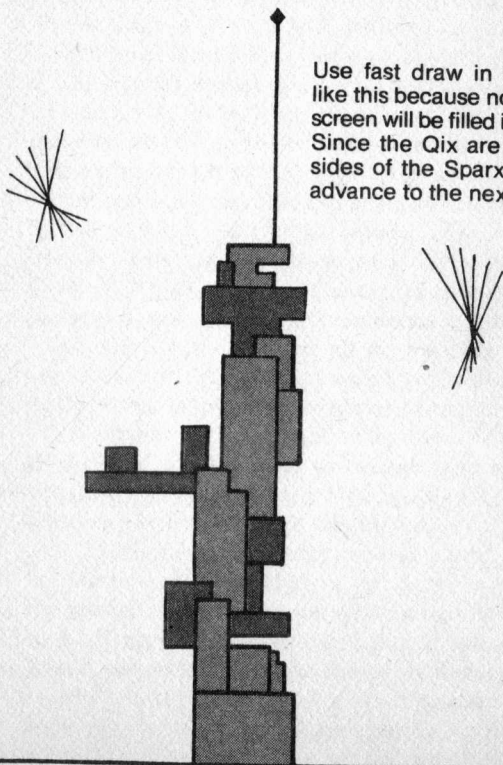
Use fast draw to build small blocks up the center of the

screen. Each block is built on top of the previous block. At times you have to build left or right to avoid Sparx or the Qix, but the general direction is upward. To gain the most distance in the least amount of time, draw, long, skinny blocks!

When you are at the top of your "ladder" and close to the wall, do a slow draw to the wall. This will fill in almost half the screen and give you a large number of points. Note that if you

Split up the two Qix on advanced boards to increase the bonus point multiplier.

Use fast draw in situations like this because none of the screen will be filled in anyway. Since the Qix are on both sides of the Sparx, you will advance to the next board.



switch from fast to slow in the middle of a line, the game still registers the area you fill as having been done with fast draw.

The area filled is always the one that doesn't contain the Qix. So, if the Qix goes to a corner, you should try to trap it there. The easiest way is to fast draw a line to the side wall. A more difficult method involves herding the Qix into a corner. This is done with a series of small blocks that limit the motion of the Qix. Once it is in the corner, procede with the fast draw.

If you need room to dodge the Sparx, and don't want the Qix in your way, build a breaker. This is a long, thin rectangle that goes toward the top of the screen. It will keep the Qix away from you long enough to outcircle the Sparx.

Snap Jack

In Snap Jack, the player uses a joystick to control the motion of a car traveling on adjustable stilts. The object of the game is to eat dots along the course of travel while avoiding obstacles. When twenty regular dots have been eaten, a brilliant "power dot" appears. When it is eaten, your car increases in power and it is able to eat up to five enemy Medus Jacks, which are normally the aggressors.

In Snap Jack, you have only one objective: to score points.

The joystick is used to control the car; moving the joystick up and down moves your car up and down. Right and left movement of the joystick controls the position on the terrain. The terrain scrolls by from right to left. For best control, you should position your car about one-half way across the screen. In this position, you can see hazards approaching you from both the front and rear. Since many obstacles approach from the front (right), it is wise to contain your eagerness to reach the next power dot and not rush ahead into an obstacle.

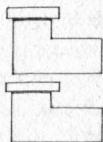
It is also a mistake to stay all the way over to the left since you will almost surely be destroyed by a rocket, Medusa Jack, bird or other creature approaching from the left.

Eat as many dots as you can; they are worth 20 points each. However, if you are in terrain where there are both top and bottom edges (under water, for example), it is better to let a few dots go by than to risk running into a rock wall.

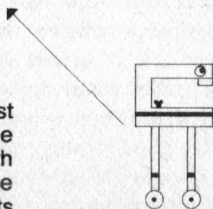
It is generally good strategy to stay ahead (to the right) of the pursuing rockets (Medusa Jacks). By falling behind, you run the risk of not having enough room to avoid other hazards such as the fish, cars on oscillating stilt legs, upside down houses suspended from the top of the screen, etc. You will especially want to be ahead of your pursuers when you are approaching a power dot, as power dots are something you do not want to let go by.

After eating twenty regular dots, a large power dot will appear. This is worth 100 points, but more important, it gives your car increased power to chase and catch enemy Medusa Jacks in the area. It is not difficult to catch the Medusa Jacks after eating a power dot, but you still must avoid the other obstacles. In other words, don't get all excited and flustered when you gain additional power. It is better to let one or two Medusa Jacks escape than to lose a car by running into an obstacle.

After eating a power dot, don't eat all the Medusa Jacks right away. Rather, wait until various letters appear and attempt to eat letters which spell E-X-T-R-A; this gives you an extra car. The letters appear only momentarily so you must be quick to get them. You needn't eat all the letters E-X-



After touching down at the first jump situated after the distance marker 36, pull the joystick both upwards and back. Otherwise you will collide with the objects passing overhead.



JUMP

36

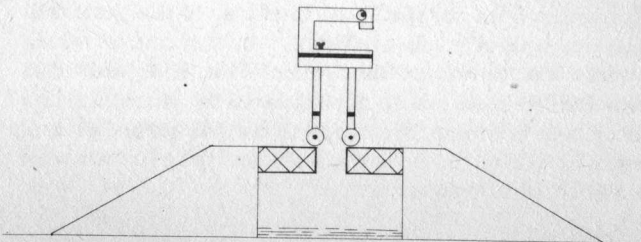
T-R- A after eating one power dot; you can accumulate them during the course of the game and still get an extra car. You should be able to earn an extra car after each two or three power dots.

After eating a power dot, each successive Medusa Jack you eat is worth 100, 200, 400, and 800 points respectively. Since power dots are potentially worth 1600 points (and more later), it is worth taking a bit of a risk to get one. In particular, you may wish to slow down (move further left on the screen) to ensure eating the power dot.

There is a wide variety of different obstacles, and no one strategy can get by all of them. For the most part, you can either duck under an obstacle, or let it go between your stilt legs. However, when there are several obstacles clustered vertically across the screen, you must slow down (move left) to let the faster-moving ones get out of the cluster. When faced with a group of obstacles, it is probably best to ignore the dots until the danger has passed.

While not always true, it is generally best to go under birds, balloons, rockets, and the bouncing ball and go over the fish and other creatures traveling on or close to the ground.

As long as the gap in the bridge is small enough to allow one wheel to pass over as the other remains on the ground, it is possible to safely cross.



Listen to the sounds which warn of approaching objects. For example, the fireball which comes from the left side is accompanied by a high-pitched woosh/whine. The bouncing ball which comes from the right of the screen makes a "boing, boing, boing" sound.

Each course has one or more bridges, which open and close. In general, it is wise to cross the bridges as soon as possible even though this means getting to the far right edge of the screen. As soon as you are over the final span, slow down and return to the left half of the screen.

At the end of each course, there is a jump board similar to a ski jump. You will need as much speed as possible to go over this. You will also have to jump with your stilts fully retracted (shortest position), so move your joystick down (this retracts stilts) and far right (fastest speed) as you approach a jump.

One jump takes you over the swamp lair of a dragon or wolf. You may well land in the marsh even though you thought you had plenty of speed. Don't panic. Move your joystick to the right (maximum speed). Although you go very slowly in the marsh, you can probably make it out before the dragon catches you.

Another jump takes you over a body of water and requires you to bounce off inflated trampolines held by obliging creatures of some sort. Your speed control works even though you are flying through the air. Adjust it so you can hit the trampoline as soon as you see it. Don't hit the creatures holding it or you both will drown. After two bounces, you are back on dry land, and have doubled your bonus points.

You can see now why power dots are so important. Not only can you get up to 1600 points after eating one, but you can double your total after a jump.

It appears from our somewhat brief play of this game that there are several levels of difficulty in the courses which probably can be set by the owner. Also, it appears that obstacles and creatures do not appear at the same time in a specific type of terrain. This suggests that reflexes and general principles will lead to higher scores than trying to memorize specific terrain/obstacle patterns.

Star Castle

Bright vector graphics and powerful sound effects are the main attractions of this game. The player must attempt to penetrate the defenses of the Star Castle, shooting away revolving rings of force fields. While doing this, he must avoid—or blast away—stars that attack him from the castle. Adding to the danger, once the inner field is penetrated, the central cannon fires large missiles at the player. Hitting this cannon provides both a nice explosion and an extra ship for the player. There are some simple techniques that can help a great deal.

Getting Started

The most crucial thing for the new player is learning to control the ship. You have a bit of time to experiment before the first stars attack—but not too long. You can't coast forever on one short thrust. If you want to keep moving, you have to keep thrusting. Turning works independently. If you turn while the ship is not moving, it will rotate in place. If you turn while moving, the ship will curve.

Fire constantly at first. It takes two hits to destroy any shield segment. The first shot turns the segment brighter, the second hit removes it. The more shots you fire, the sooner gaps will appear, assuming the shots hit their targets.

Your ship bounces from the castle on contact. It contains a sort of repeller field that surrounds the area beyond the outer ring at all times. This bounce can be used to your advantage. When your ship appears on the screen, fly a straight horizontal path toward the castle, firing constantly. When the ship hits, it will reverse and bounce back. Keep thrusting. The ship will reach the edge of the screen, wrap around, and approach from the other side. Keep up the bouncing and firing.

When using the above pattern, be careful about shooting the inner ring. If you break the inner ring while flying in a predictable back-and-forth pattern, you'll be dead meat for the cannon.

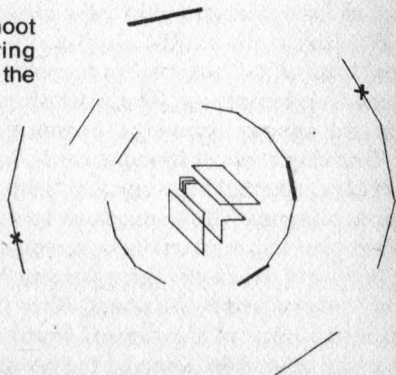
At the beginning, the stars are very slow, and you have time to pick them off. When they get faster, let them get near you at the edge of the screen. Then move off screen to the other side. The stars can't follow, and must cross the screen to get you. Since they last only a limited time, they soon fade.

As in most games with rotating ships, there are areas you can't hit from a stationary position. This is especially important to remember when the stars come after you. You might be able to pick them off without moving, but you have a better chance of survival if you aren't standing still.



It takes two shots to destroy a section of a ring. When a plate has been shot once, it will increase in brightness.

The player should not shoot the last section of a ring because it will regenerate the entire ring.



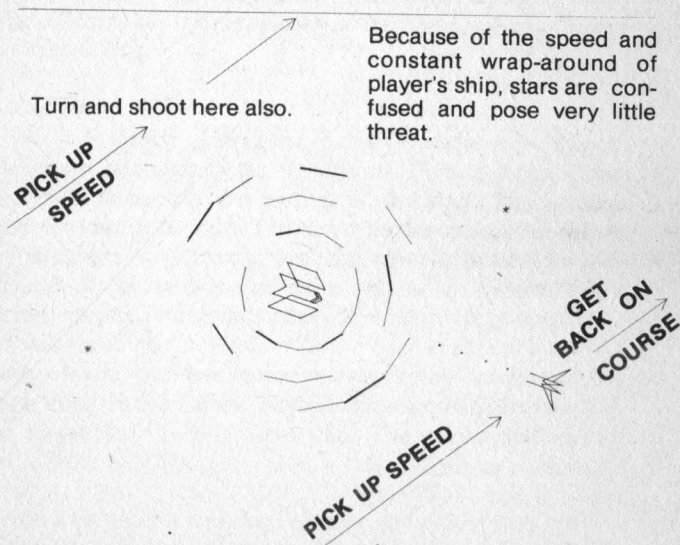
NOTE: The enemy ship is always trying to point at the player's ship.

Advanced Techniques

As the game progresses, the stars get even faster, and gain the ability to wrap around the screen. The player must contend with this, and must also worry about the shots fired from the castle. This requires a different strategy from the one used at the beginning.

Avoid making sharp changes in direction when there are openings in the inner ring. Such changes cause the ship to come almost to a dead halt, giving the cannon an easy target.

Fly at an angle past one side of the castle. Keep thrusting until you are next to it. Stop the thrust, turn and fire, then straighten out. The crucial part is to stop the thrust before beginning the turn. Otherwise the ship will get out of control. If you can hit the inner ring, make sure to fire three shots. The first two will blow away the segment, the third will get the cannon.



Turn without thrusting and then fire as many shots as possible. Resume original flight pattern.

The above pattern also cuts down the chance of being hit by a shot from the castle, and prevents the stars from catching up with you.

When any ring is down to one segment, make sure you don't hit it. That will cause the entire ring to reappear. This is the one time when you should avoid firing constantly.

If you do stop moving, stay near an edge. This gives you a chance to duck the fire from the cannon.

Be careful about flying too close to the castle when the stars are out. A collision could bounce you right into a star and out of the game.

Whenever you are flying directly away from the castle, fire a few shots. The wraparound will turn them into hits. This effectively increases your rate of fire.

Star Gate

Son of Defender, Star Gate is one of the more complex arcade games. The player must deal with a joystick, five buttons, an assortment of attackers, and several defense techniques. Topping it off, there are two displays: a main screen containing the player and a portion of the landscape, and a radar map showing all active items. Basically, the player must destroy enemy attackers and protect defenseless humans on the ground at the bottom of the screen. The humans are in danger of being carried off. If the enemy carrying the human is shot, the player can catch the falling person and set him back down. Star Gate definitely takes time to learn, but the complexity of the game makes a victory very rewarding.

Getting Started

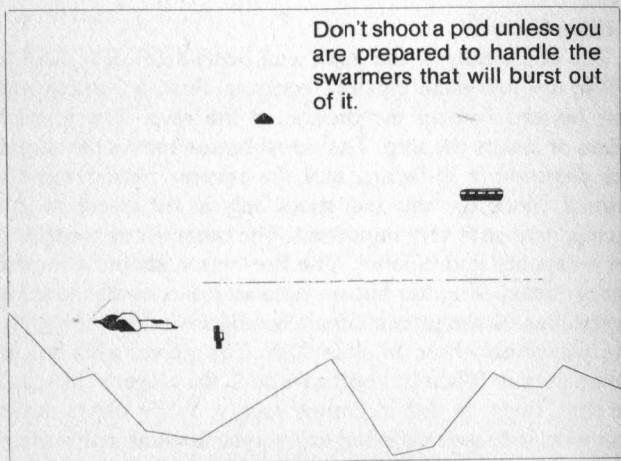
The complexity of the game can overwhelm new players. There are two main types of controls. First, a joystick and two buttons control the motion of the ship. The joystick raises or lowers the ship. The thrust button moves the ship in the direction it is facing, and the reverse button turns it around. Since the ship can shoot only in the direction it is facing, reverse is very important. The other set of controls is for weaponry and defense. The fire button shoots a normal energy beam. Another button releases smart bombs that kill every alien on the screen. Smart bombs are in limited supply, the player has three to start with. The player also has an inviso button. When this button is held, the player's ship can't be shot. Inviso is also in limited supply. While this is rather complex, it doesn't take long to become familiar with control of the ship. Once this is mastered, the rest falls into place.

You have two goals: to protect yourself and to protect the humans. Enemies should be shot as soon as possible. Some of those that remain on the screen will release pods that chase you. The winged aliens will steal the humans.

Learn to use the joystick and reverse button together. It is best to face the direction of the target you are chasing. This allows you to shoot without hesitation, and can come in handy if the enemy drops into your sights sooner than expected.

The top display is full of valuable information. It shows where all the enemy ships are. You must wipe them out, or life will get very complicated. When there is nothing on the screen, head toward an area containing enemies, but be careful of flying straight into your targets.

The Star Gate (a set of concentric squares) transports you to the scene of an abduction. If no one is being abducted, you are just sent to the other side of the "world." By using the radar display and the Star Gate, you can limit the number of people lost. If you happen to be carrying four humans, fly through the Star Gate. This gives you a generous helping of bonus points.



Always try to catch falling men by approaching it so that the bottom of your ship just touches the top of the humanoid.

When a person is falling, you can catch him by flying over so that the bottom of your ship touches his head. From there, you can set him on the ground.

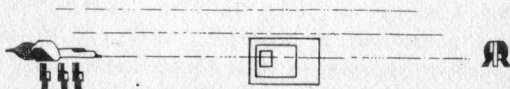
In the second round, the message "POD INTERSECTION" followed by a number appears at the top of the screen. The number decreases every second. The meaning of this message is that all the pods will be on one part of the screen. The importance of this is that if you get there and drop a smart bomb, you will rack up extra points.

Advanced Techniques

There are several parts of the game that repeat in cycles. Each must be handled differently, but each offers high scoring potential. The skilled player learns to face each of the challenges and survive to the next wave.

In the fifth round, and every ten rounds after that, the player faces the Yllobian dogfight. This attack can be defeated without using any smart bombs. The trick is to thrust toward the pack and use invis. From there, you can blast them by using quick changes in altitude and by reversing. You should be able to clear away most of them before the invis runs out.

Sometimes it is a good strategy to not put down caught humanoids. If they are the last ones left, no one can capture them as long as you hang on to them.



Carrying humanoids and going through the stargate gives the player extra bonus points.

Send up a spread of fire when trying to shoot a mutant as they fly irregular patterns.

Every ten waves, there is a Firebomber showdown. These are the most deadly of the aliens. You can finish the round without firing a shot. Just use three smart bombs, timing them to do the most destruction.

If a lander has a human, it is sometimes better to let him rise a bit before you shoot. This gives you time to save the human. Be especially careful of shooting at landers (or anything else) near the ground. A stray shot might hit a human.

Tempest

One of the most attractive of the new games, Tempest is fast paced and colorful. The player skirts the perimeter of various multi-sided tunnels, shooting at attackers that emerge from the center or bottom of each tunnel. Atari has attempted to give a three-dimensional look to the game, and they succeeded fairly well. The player fires shots in bursts of eight, but the shots move so quickly that fire seems almost constant. The ship is moved with a weighted knob that makes continuous spinning easy, and the fire button can be held down for rapid shooting. There is also a super zapper, but it can only be used twice per screen. On the first use, the super zapper destroys every attacker on the screen. The second time, it destroys only one enemy, seemingly the one with the highest point value. At the start, the player can select his skill level, using the knob and the start button. While a player can get quickly killed by picking a high level, he can also get a lot of bonus points quickly if he lives through the first attack. The top level can only be picked if the previous score is high enough. If you are new at Tempest and want to try the most advanced level, you will have to wait for an expert player to leave the machine, then pick the top level right away. Tempest, like most games, can be changed by the operator, who can obtain information on average playing time and longest playing time for his machine. Thus, you should not depend too much on patterns or other such strategy. Though success at Tempest is tied more closely to reflexes than anything else, there are certain things a player should keep in mind.

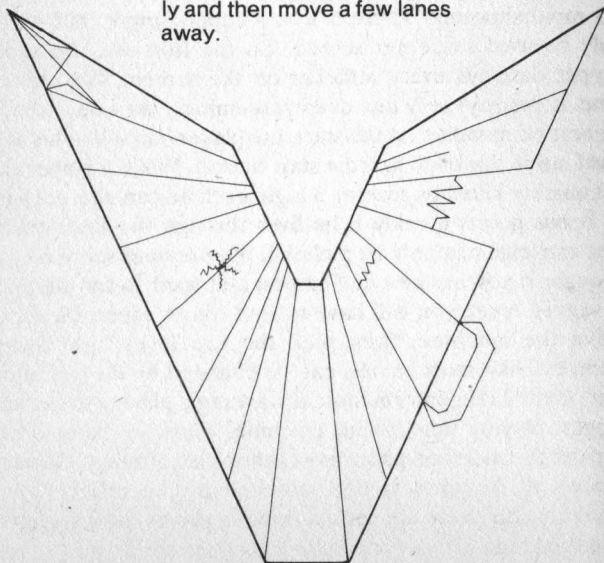
Getting Started

The most important tip for the beginner is to spin the knob. Don't clutch it, limiting yourself to short moves. At the early levels, you can accomplish a lot just by spinning the knob while holding down the fire button. Make sure to move both ways. Don't just keep going clockwise, spin through one or two complete cycles, then reverse directions.

In early levels, the tankers split into two flippers when hit. These flippers should be shot as soon as possible. Don't allow them to get to the top of the tunnel. Hit the tanker, then spin quickly back and forth to get the two flippers before they can advance too far.

The flippers are tough, because, unlike the other attackers, they flip from wall to wall, cycling around the perimeter of the figure. But flippers can be killed. Wait until one has just clamped onto the sector next to you, heading in your

To safely shoot pulsars, only enter their lanes when they are not extended. Fire quickly and then move a few lanes away.



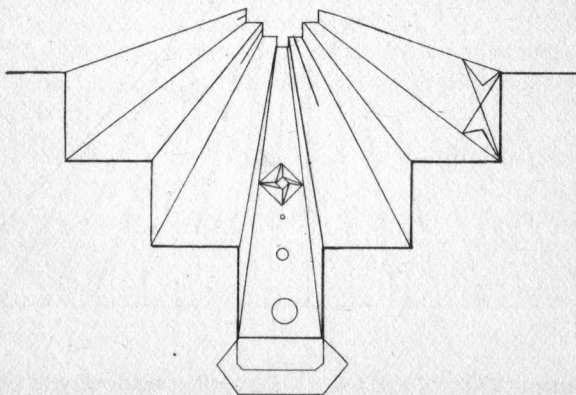
direction, then start firing. With the right combination of luck and timing, the flipper will be hit as it moves into your sector. It is possible to slide past a flipper while it is changing sectors, but this is dangerous and not recommended unless there is no other way out.

In the early levels, the fuseballs aren't too dangerous. If you don't shoot them, they just pass by. This is true while the fuseballs are blue or red. Later, they will come after you.

In the low levels, it is essential to get rid of spikes. Since they are usually close to the player, they can quickly be destroyed with rapid fire.

At the end of a board, the player finds himself zooming down the tunnel. If you notice you are going down a segment that contains a spike, keep shooting. Remember that it is also possible to move, even when you are heading for the center. If all the segments are spiked, pick one with a short spike and blow it away as you go down.

Use your super zapper on every board. It will always be recharged, and it is a waste not to use whatever firepower you have at your disposal. If possible, hold out until there are a lot of enemies on the screen, then super zap the lot of them back to arcade heaven.



This tanker is about to be hit. The player should quickly spin right then left, firing as

he does so. In this manner he can hit the flippers without too much trouble.

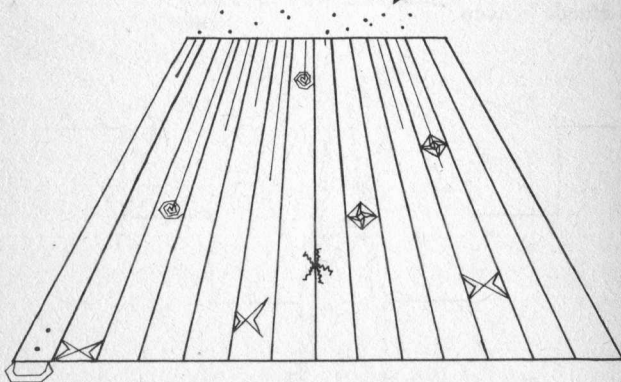
Advanced Techniques

As the game progresses, the intensity of the attack increases, and the player has to operate almost on an instinctual level. There is no time to think. The nature of the segments also changes. In the beginning, the player can move in a full cycle around any screen. Later, the area is cut down, with two endpoints. This calls for a change in strategy.

Since the player can't move past the two endpoints, these should be kept clear of spikes. That way, when a screen ends, you can spin safely to one of the ends and not be impaled. This is actually an advantage over the earlier boards.

NOTE: Keep end rows as spike-free as possible so at the end of a screen you can just spin all the way over without worrying about being impaled.

NOTE: Since there are many things left down here, the player probably should save his superzapper for later use.



To destroy a flipper that has reached the top edge, the player begins shooting just as flipper occupies adjacent row.

Fuseballs should not be allowed to reach the top edge. After killing the flipper, the fuseball should be the player's next target.

Keep track of the red dots near the center of the tunnel. These help indicate the number of attackers yet to come. When the dots are gone, the wave is almost over. Make sure to use your super zapper before the screen ends, but don't waste it too soon. Try to make it do as much as possible for you. In advanced levels, there is another way to tell that the end is near. A fuseball that is invulnerable will come out, reach the end of the tunnel, then begin to move along the perimeter. Next, a tanker appears. When this tanker reaches the end of the tunnel, the wave is over.

Don't stand still when shooting pulsers. Sweep by with rapid fire.

Flippers are more dangerous when they are on sharply-angled segments. They have less distance to travel there, and stand more of a chance of getting you if you pass by.

You don't have to look toward the center to spot pulsars. The top edge of a rail will disappear when a pulsar is in that sector.

In round 33 (this may vary among machines), tankers carry two fuseballs. When the tanker is hit, the fuseballs will go for you.

In rounds from 40 and up, the tankers also carry pulsars. These different tankers are hard to tell apart, but each kind has a different mark in the middle.

If a spiker gets back to the bottom without being hit, it will turn into a tanker. Shooting the spiker will make things easier later.

Venture

Venture is one of the few games with a fantasy rather than science fiction theme. The goal of the player is to steal treasures from a dungeon while avoiding or killing monsters. The player, in the guise of the character Winky, is armed with a bow and arrows, and can aim in eight directions. While some succumb to the arrows, there are others that can't be harmed. These are similar to Evil Otto from Berzerk; the only way to escape is to flee. Though the game is couched in fantasy, the techniques involved are those used in most games, and require coordination, dodging, shooting, and quick responses.

Getting Started

When the game begins, the player appears on steps above the first level of the dungeon and descends automatically. Once you enter a room, it grows in scale, filling most of the screen. Each room has different hazards, but the layout of the rooms on each dungeon level is the same each time you play. There is a great deal going on; the following tips will help those who are trying their first assault on the dungeon.

Speed is essential. The longer you spend in one place, the greater your chance of losing a man. But don't rush. It is better to be careful in the beginning than to hurry, miss shots, and take needless chances.

The first monsters you see are Hallmonsters. They can't be shot, and are deadly to touch. When you enter a room, you see several room monsters and a treasure. The room monsters can be shot, but your main goal is to grab the treasure and get out. While you get points for shooting these monsters, this takes time and increases the odds against you.

When you shoot a monster, it disintegrates, but will remain deadly until it is completely gone. There are two things to remember: a second arrow will cause the corpse to reappear and the disintegration process will be repeated; also, contact with any portion of the monster is still deadly to the player.

Another reason for getting through rooms quickly is that there is a bonus for speed at the end of each level. The faster you get through the level, the higher the bonus multiplier.

If you leave a room without a treasure, any monsters that were killed are revived. It is best not to leave a room without a treasure, but if a Hallmonster is on your tail, there is often no alternative.

After you take a treasure from a room, that room will fill in and can't be entered again. When you have all the treasures in a level you descend deeper into the dungeon and face four new rooms. Obviously, getting treasures is more important than shooting monsters if you want to travel deep into the dungeon.

The easiest room on the first level is the wall room where four wall segments move in and out. The player can touch these without harm, but will be killed if he is crushed between walls. You can easily fit through the corners while the walls are apart. Though this room normally should be saved for last, you might want to go there right away in your first game, just to savor a quick triumph.

When shooting the snakes, remember, it has a larger target area lengthwise.



WINKY'S MOVEMENT

With arrow in the diagonal position Winky still moves left but at the same time confuses the monsters.

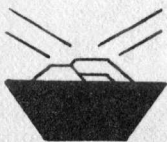


In the serpent room, try to shoot snakes from above or below. They present too thin a target for shots from the left or right. Again, remember that shooting monsters is only a secondary goal. If one puts you in danger, hit it. If you can sneak by without firing a shot, that is fine.

When you enter a room, it is usually best not to shoot right away. You can have only one shot on the screen at a time, thus you must choose your shots carefully. On the way out of a room, it is OK to fire one or two shots in the hopes of hitting a monster and gaining some points, as long as you don't waste too much time.

Although shooting a monster near a treasure can block your path, it can, as shown, block the path of other monsters

WARNING: Do not shoot a decaying monster, it will only revive it and cause the decaying process to re-start.



Advanced Techniques

Later, the player faces monsters that are both faster and smarter. New features present obstacles and more ways to be killed. Speed becomes crucial. Thus, a player must know what room he is entering and have a strategy ready. Here are some tips to help prolong your dungeon stay.

The troll room is the hardest of those on the second level. One method is to wait by the middle wall of the room until the other walls disappear. Then go up to the right, grab the treasure, and leave immediately. Timing is important. Another approach is to wait at a point diagonally to the lower left of the wall with your bow pointed at the wall. When the wall disappears, a troll will come right out into your line of fire. Then you can move up and outcircle the others on the way to the treasure. As the above shows, there can be more than one successful strategy for a room.

When you are about to enter a room, check which exit has the fewest Hallmonsters nearby. This is the exit you should use when leaving the room.

Wait until a monster is *about* to move into your line of fire, then take a shot. If you shoot when he is in line with you, he will move away.

The game seems to sense your line of fire. To confuse the monsters, slide against the walls whenever possible. This allows you to move straight even though the joystick is pointed on the diagonal. The monsters will be confused about the direction in which you are heading. Also, traveling along a wall puts the maximum space between you and the monsters.

When you are heading toward a treasure, try not to shoot a monster that is blocking your path. While the corpse doesn't take that long to disintegrate, the time lost waiting might just be enough to bring in a Hallmonster.

Glossary

Arcade goers have developed their own lingo which is slowly creeping into the language in general. Below are definitions of some of the more common terms.

Board—Also known as a screen, round, attack, wave, or sector. The term probably is derived from the use of a board in strategy games such as chess. A board is a specific group of aliens, or a separate, distinguishable set of obstacles. The first set of aliens in Space Invaders make up one board. The ramps and barrels in Donkey Kong are part of the first board. There is usually a brief pause between boards in a game.

Bonus—Anything awarded beyond standard score value. In most cases a bonus is in the form of additional points or an extra ship. A bonus is often a reward for doing something risky.

Cycle—A series of boards which repeats in some fashion. In Phoenix, the game goes through a cycle of five boards. In most games, each new cycle is more difficult than the previous one.

Enemy—Also known as monsters, invaders, or aliens. These are the computer—controlled objects that the player must destroy or avoid. In some two-player games, the enemy is controlled by another human.

Extra Ship—Also called free man, extra base, or new life. This is a bonus ship, usually awarded for achieving a certain score, or for completing a specific number of boards.

Fire Button—A switch that launches a bullet or missile.

Joystick—A lever used to control motion. One type senses four or eight positions, another type senses an absolute location.

Knob—A dial used to control the motion. Generally, this motion is along a straight or curved line.

Mother Ship—A large ship which may refuel or replenish aliens or have awesome attack capabilities.

Saucer—Typically a high-value object designed to distract the player.

Shield—Also called a force field. This is a defensive last resort which gives momentary immunity from the enemy. A shield can also sometimes be a offensive weapon.

Ship—This refers to the object controlled by the player, as long as the object vaguely resembles any form of vehicle. Even a tank can be considered a ship, though a frog doesn't quite make it.

Wraparound—This describes the action of objects that move off one edge of the screen and reappear on the opposite side. The screen acts as if the left and right edges were connected, as well as the top and bottom.

The Creative Computing Guide to the Video Arcade Games

is different from all the others. The authors, David Lubar, 23, and Owen Linzmayer, 17, played tens of thousands of games taking notes the entire time. Thus they offer tips on each for a beginner playing the very first time. Tips for not getting wiped out in four seconds, where to hide, how to shoot or move, and how to prolong the action in relatively safe ways.

Of course the book includes playing hints for more advanced players too. How to rack up the high scores and how to use teamwork.

The illustrations by Owen Linzmayer show close-up details of a portion of the screen and describe in detail the motion of objects and how the player should react.

The book covers the most popular and latest games including several just introduced and not described anywhere else.

ISBN: 0-916688-35-6

